

The New Curative  
TREATMENT OF DISEASE  
BY  
M. PLATEN





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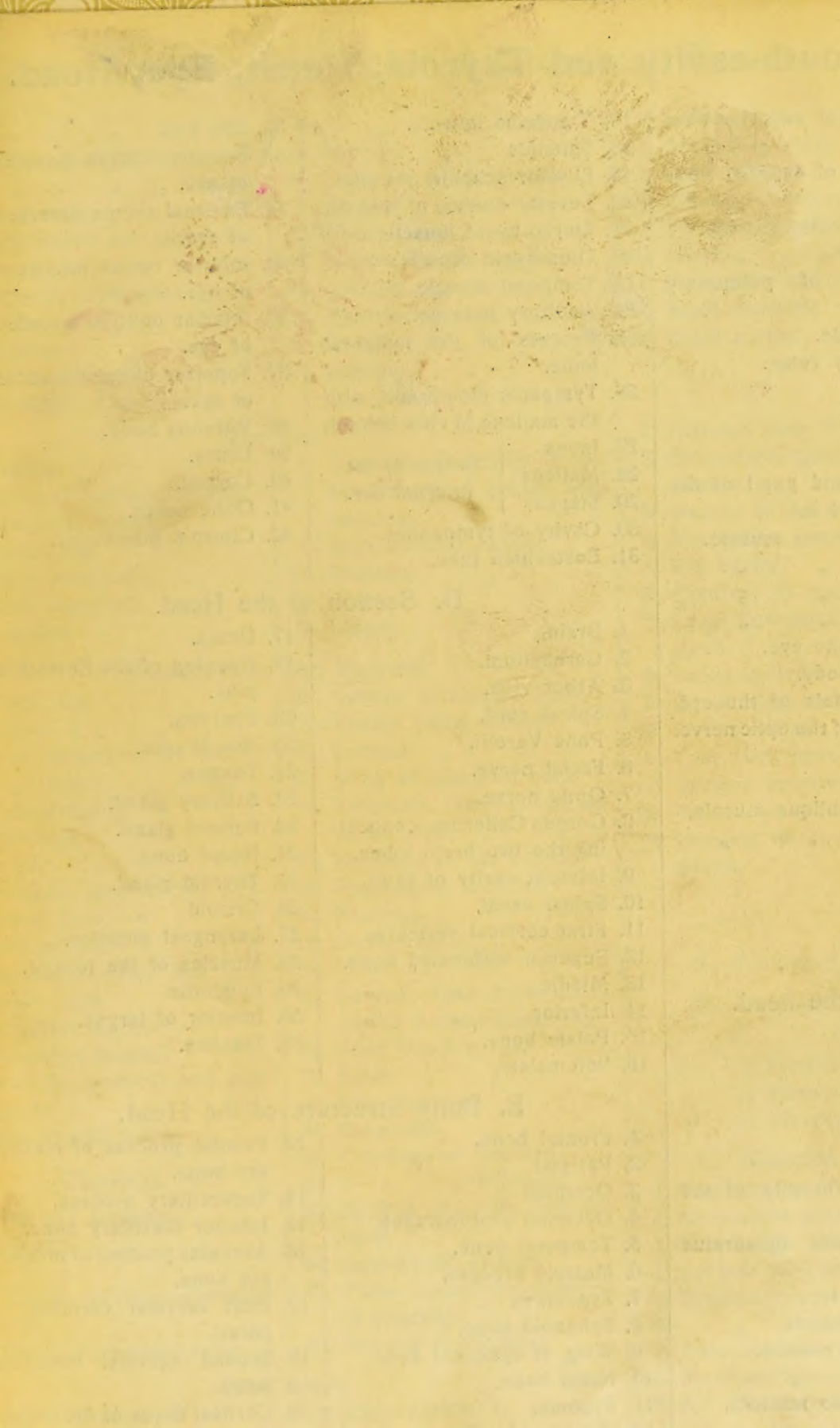




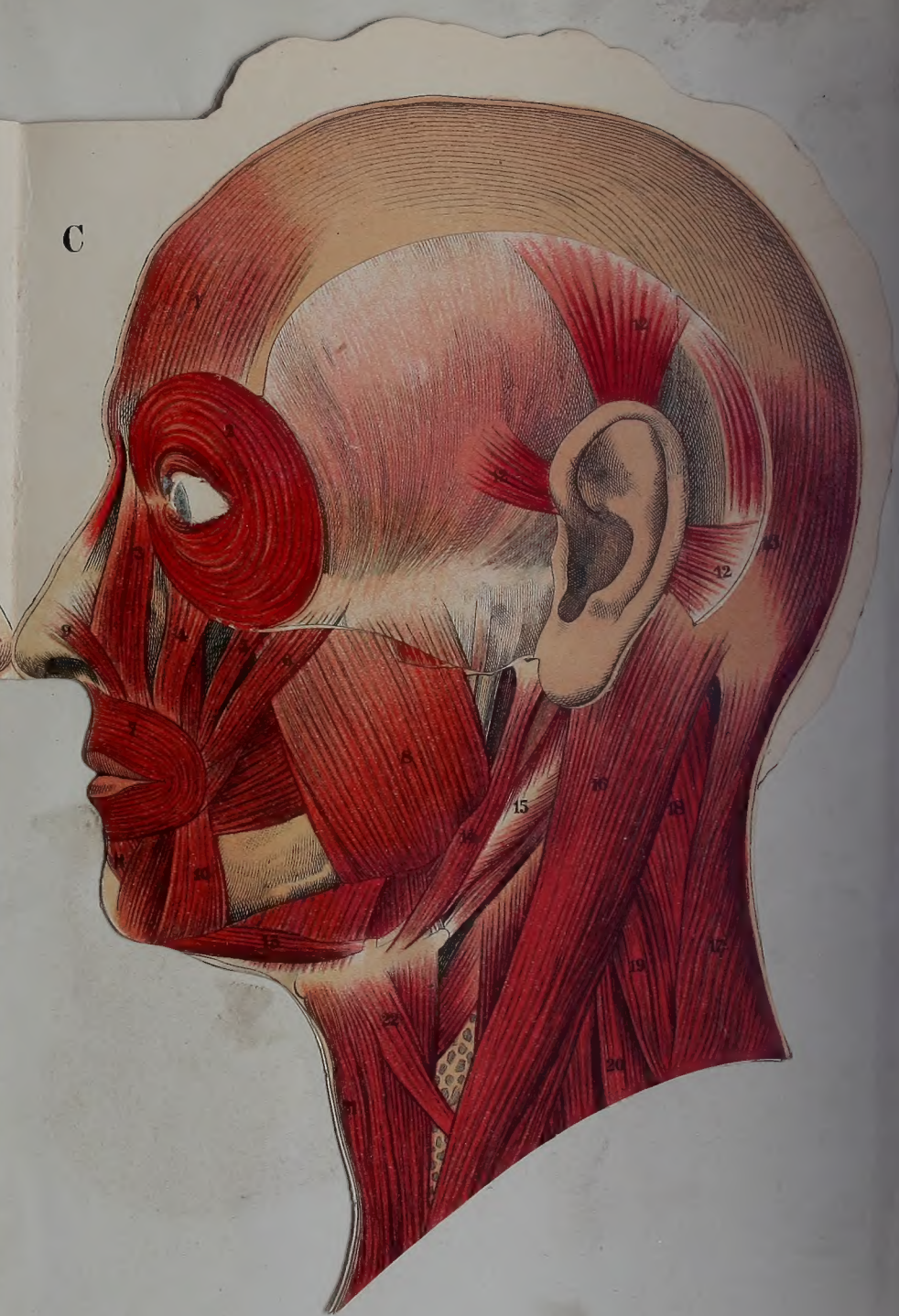
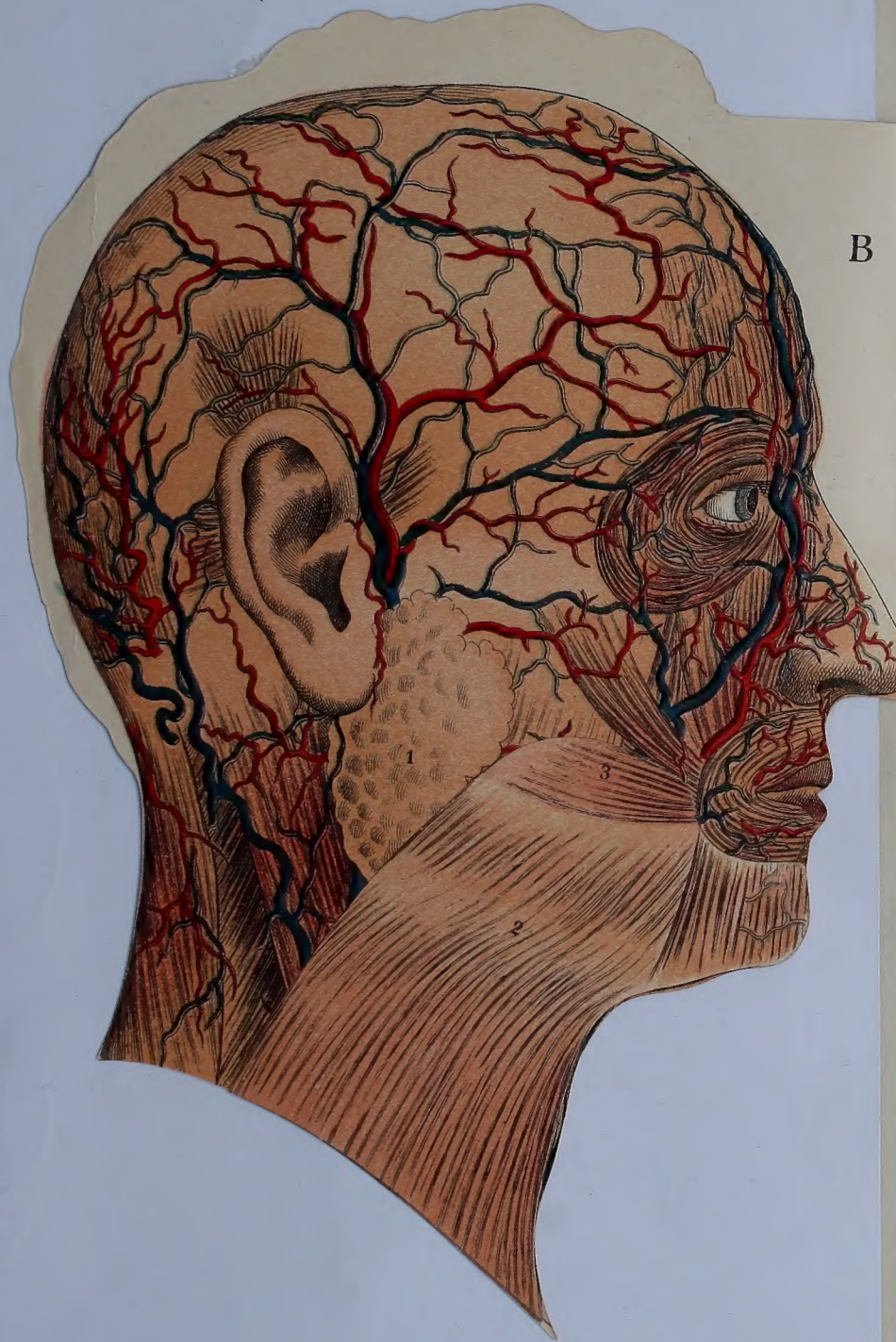
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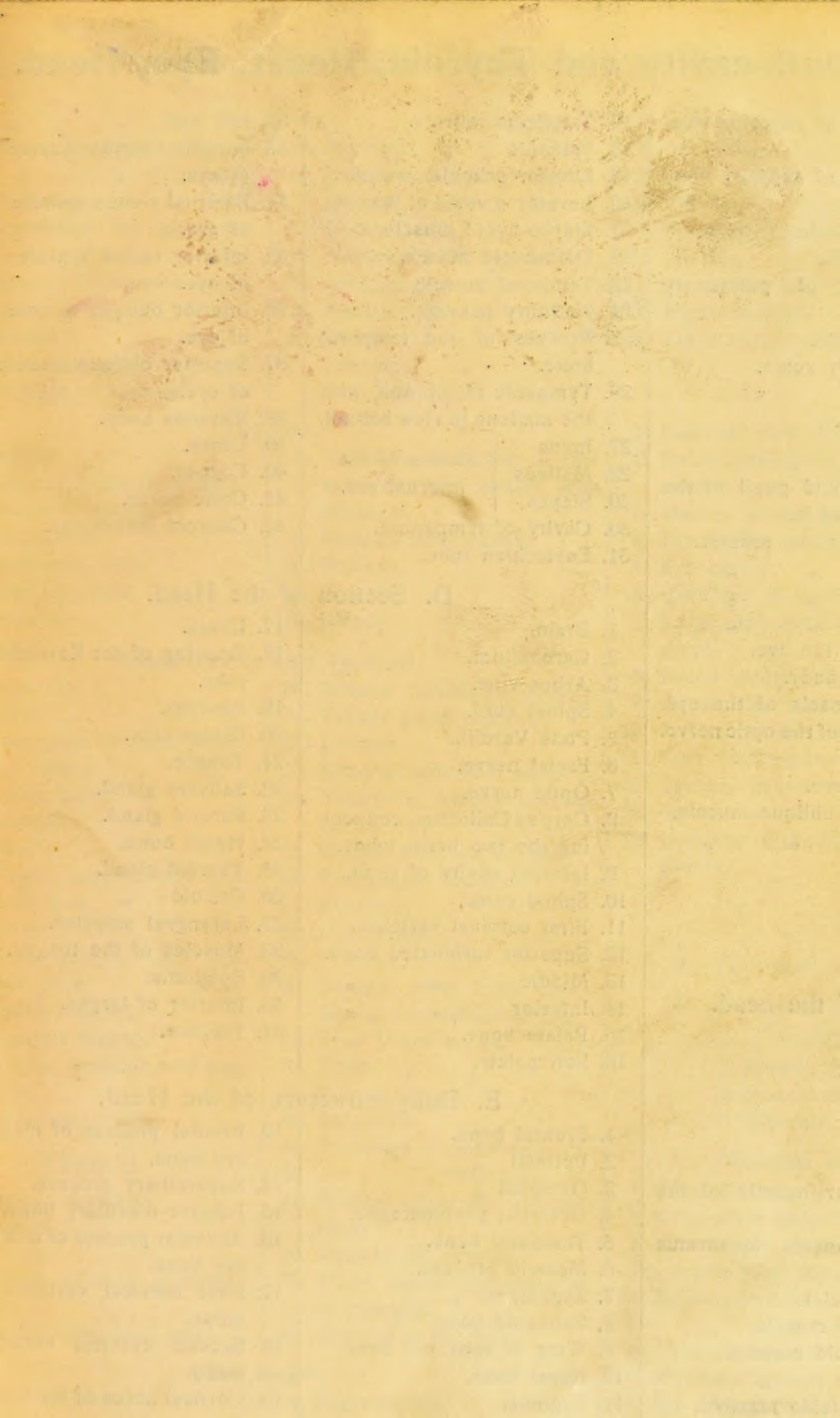




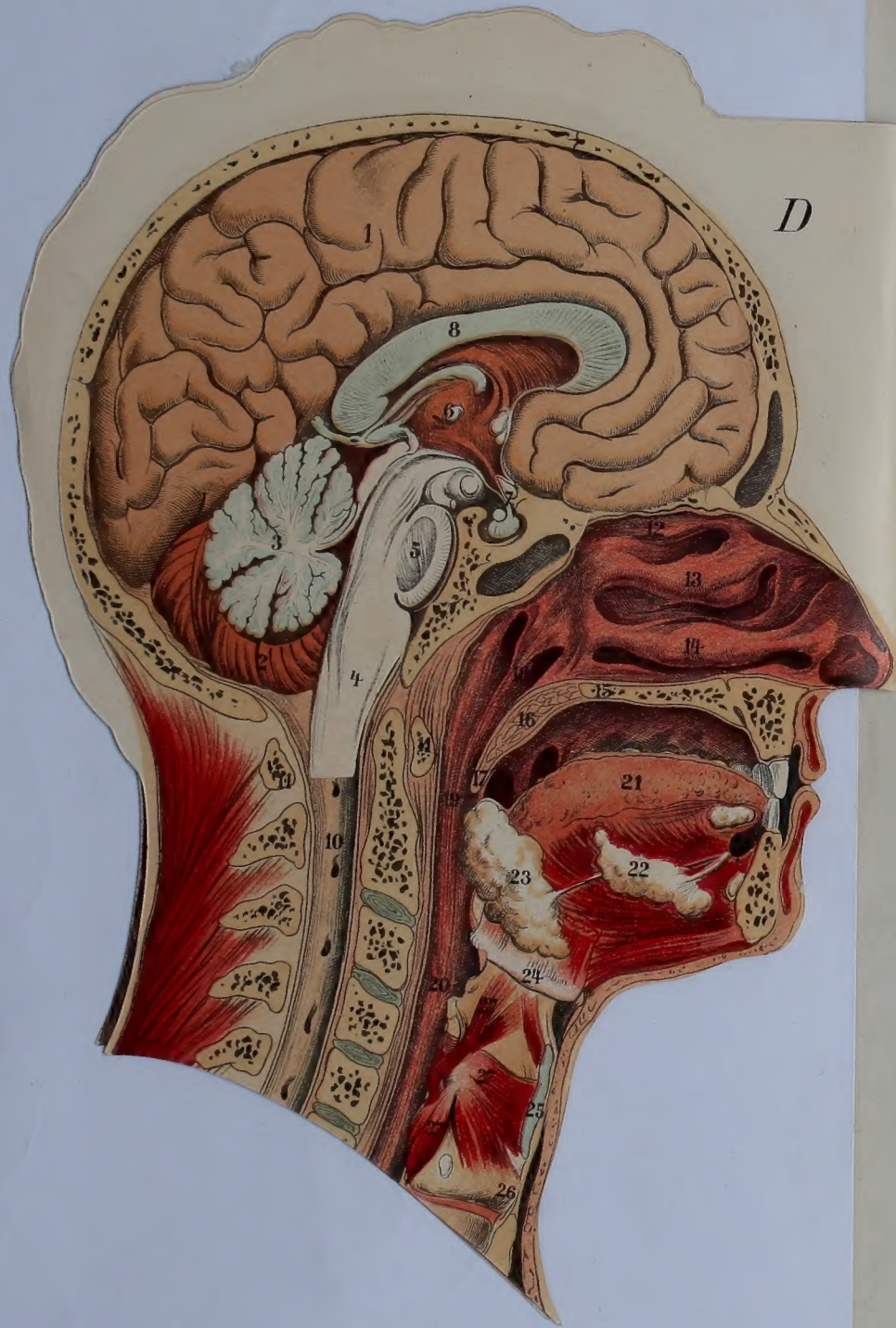












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# Superimposed Plates of Anatomical Models: Nose, Ear, Mouth-cavity and Thyroid, Heart, Eye, Head.

## The Nose.

- |                                  |                                   |
|----------------------------------|-----------------------------------|
| 1. Lateral Cartilages (upper).   | 10. Septum.                       |
| 2. " " (lower).                  | 11. Ethmoid, perpendicular plate. |
| 3. Nasal bone.                   | 12. Vomer.                        |
| 4. Depression for lachrymal sac. | 13. Nerves of the septum.         |
| 5. Superior turbinated bone.     | 14. Arteries " " "                |
| 6. Middle " "                    | 15. Superior meatus.              |
| 7. Inferior " "                  | 16. Middle " "                    |
| 8. Palate bone.                  | 17. Inferior " "                  |
| 9. Cartilage of septum.          |                                   |

## The Ear.

- |                              |   |
|------------------------------|---|
| 1. Auricle.                  | 8. Vestibule (meeting of the semi-circular canals and cochlea). |
| 2. External auditory meatus. | 9. Semi-circular canals.  |
| 3. Tympanic cavity.          | 10. Malleus.  |
| 4. Tympanum.                 | 11. Incus.  |
| 5. Eustachian tube.          | 12. Stapes.   |
| 6. Bony labyrinth.           |   |
| 7. Cochlea.                  |   |

## Mouth-cavity and Thyroid.

- |   |  |
|---|--|
| 1. Upper lip.                           | 20. Inferior turbinated bone.                        |
| 2. Lower "                              | 21. Tensor palati muscle.                            |
| 3. Four upper incisor teeth.            | 22. Levator " "                                      |
| 4. " lower " "                          | 23. Wing of sphenoid bone.                           |
| 5. Canine teeth.                        | 24. Epiglottis, internal and external view.          |
| 6. Bicuspid "                           | 25. Entrance to the larynx.                          |
| 7. Molar "                              | 26. Pharyngeal muscles.                              |
| 8. Tongue, anterior and posterior view. | 27. Pharynx.   |
| 9. Soft palate.                         | 28. Oesophagus.                                      |
| 10. Uvula, anterior and posterior view. | 29. Trachea.   |
| 11. Anterior fauces.                    | 30. Larynx, seen from above during normal breathing. |
| 12. Posterior fauces.                   | 31. True Vocal cords.                                |
| 13. Tonsils, anterior and posterior.    | 32. False " "  |
| 14. Pharyngeal cavity.                  | 33. Rima glottidis.                                  |
|   | 34. Epiglottis.                                      |
|   | 35. Cartilage of Santorini.                          |
|   | 36. " " Wrisberg.                                    |
|   | 37. Section of larynx, anterior view.                |
|   | 38. Stylo-hyoid muscle.                              |
|   | 39. Three constrictor muscles of pharynx.            |
|   | 40. Ends of hyoid bone.                              |

## Thyroid.

15. Thyroid cartilage.
16. Cricoid "
17. Larynx.
18. Septum of nose, posterior view.
19. Middle turbinated bone.

## The Heart.

- |                     |                               |
|---------------------|-------------------------------|
| 1. Right ventricle. | 3. Right auricle.             |
| 2. Left "           | 4. Right auricular appendage. |

5. Left auricular appendage.
6. Ascending aorta.
7. Arch of aorta.
8. Pulmonary artery.
9. Superior vena cava.
10. Inferior " "
11. Pulmonary artery, opened.
12. Right ventricle "
13. Right auricle, opened.

14. Opening of superior vena cava.
15. Opening of inferior vena cava.
16. Left ventricle, opened.
17. " auricle "
18. Entrance of pulmonary veins.
19. Left auricle.
20. Pulmonary veins.

## The Eye.

- |                                      |   |
|--------------------------------------|---|
| 1. External view of the eye.         | 15. Sclerotic.                              |
| 2. Orbicularis palpebrarum muscle.   | 16. Iris.                                   |
| 3. Muscle of the eyelid.             | 17. Cornea, and pupil of the eye behind it. |
| 4. Eye lashes.                       | 18. Internal rectus muscle.                 |
| 5. Eye cavity.                       | 19. Superior " "                            |
| 6. Cartilage of eyelid.              | 20. External " "                            |
| 7. Large and small lachrymal gland.  | 21. Inferior " "                            |
| 8. Lacus lachrymalis.                | 22. Lense of the eye.                       |
| 9. Canaliculus lachrymalis.          | 23. Vitreous body.                          |
| 10. Lachrymal sac, opened.           | 24. Blood vessels of the eye.               |
| 11. Tear duct, opened.               | 25. Entrance of the optic nerve.            |
| 12. Levator palpebræ muscle.         | 26. Macula.                                 |
| 13. Meibomian gland.                 | 27. Optic nerve.                            |
| 14. Opening of the Meibomian glands. | 28. Superior oblique muscle.                |
|                                      | 29. Inferior " "                            |

## The Head.

### A. External view of the head.

### B. External arteries and veins of the head.

Arteries, red; Veins, blue.

1. Parotid gland.
2. Musculus cutaneus colli.
3. Risorius.

### C. Muscles of the head.

- |                              |                                    |
|------------------------------|------------------------------------|
| 1. Frontalis muscle.         | 10. Depressor muscle of the mouth. |
| 2. Orbicularis palpebrarum.  | 11. Chin muscle (quadratus menti). |
| 3. Pyramidalis muscle.       | 12. Ear muscles.                   |
| 4. Levator labii superioris. | 13. Occipital muscle.              |
| 5. Zygomaticus minor muscle. | 14. Stylo-hyoid muscle.            |
| 6. " major "                 | 15. Digastric "                    |
| 7. Orbicularis oris.         | 16. Sterno-cleido mastoid muscle.  |
| 8. Masseter muscle.          |                                    |
| 9. Ala nasi muscle.          |                                    |

17. Trapezius muscle.
18. Splenius "
19. Levator scapulæ muscle.
20. Levator muscle of first rib.
21. Sterno-hyoid muscle.
22. Omo-hyoid muscle.
23. Temporal muscle.
24. Auditory passage.
25. Process of the temporal bone.
26. Tympanic membrane, with the malleus in view behind.
27. Incus
28. Malleus
29. Stapes
30. Cavity of tympanum.
31. Eustachian tube.


## D. Section of the Head.

- |   |                                     |
|---|-------------------------------------|
| 1. Brain.   | 17. Uvula.                          |
| 2. Cerebellum.                                      | 18. Opening of the Eustachian tube. |
| 3. Arbor vitæ.                                      | 19. Pharynx.                        |
| 4. Spinal cord.                                     | 20. Œsophagus.                      |
| 5. Pons Varolii.                                    | 21. Tongue.                         |
| 6. Facial nerve.                                    | 22. Salivary gland.                 |
| 7. Optic nerve.                                     | 23. Parotid gland.                  |
| 8. Corpus Callosum, connecting the two brain lobes. | 24. Hyoid bone.                     |
| 9. Internal cavity of skull.                        | 25. Thyroid gland.                  |
| 10. Spinal canal.                                   | 26. Cricoid "                       |
| 11. First cervical vertebra.                        | 27. Laryngeal muscles.              |
| 12. Superior turbinated bone.                       | 28. Muscles of the tongue.          |
| 13. Middle " "                                      | 29. Epiglottis.                     |
| 14. Inferior " "                                    | 30. Interior of larynx.             |
| 15. Palate bone.                                    | 31. Trachea.                        |
| 16. Soft palate.                                    |                                     |

## E. Bony Structure of the Head.

- |                              |  |
|------------------------------|--|
| 1. Frontal bone.             | 13. Frontal process of maxillary bone.   |
| 2. Parietal "                | 14. Superciliary process.                |
| 3. Occipital "               | 15. Inferior maxillary bone.             |
| 4. Occipital protuberance.   | 16. Articular process of maxillary bone. |
| 5. Temporal bone.            | 17. First cervical vertebra (atlas).     |
| 6. Mastoid process.          | 18. Second cervical vertebra (axis).     |
| 7. Zygomatic "               | 19. Cortical fibres of the brain.        |
| 8. Sphenoid bone.            |  |
| 9. Wing of sphenoid bone.    |  |
| 10. Nasal bone.              |  |
| 11. Zygoma.                  |  |
| 12. Superior maxillary bone. |  |





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*M. Platen.*



THE  
New Curative Treatment  
of Disease.

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HANDBOOK

Of Hygienic Rules of Life, Health Culture, and the Cure  
of Ailments without the aid of Drugs,

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An Invaluable Household and Family Guide  
for the Healthy and the Ailing,

BY

M. PLATEN,

*Lecturer on, and Practitioner of the New Curative Treatment.*

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WITH 432 ILLUSTRATIONS IN THE TEXT, SEVENTEEN COLOURED PLATES, A  
PORTRAIT OF THE AUTHOR, AND SUPER-IMPOSED ANATOMICAL PLATES.

— o VOLUME I. o —

BONG & CO., London.



Yet a change is possible. That is the message I bring to all who groan under the oppression of the unhealthy conditions of modern life: to all who are diseased, feeble, sick and miserable: to all who have been thrown back or ruined in their profession by ill-health: to all whose life and progress have been jeopardised, if not wholly undermined, by a tedious illness.

The aim of this book is to prove that, in spite of the sad conditions of modern life — the conditions of our social intercourse and our occupations — which leave so much to be desired in many respects, it is not impossible to secure a comparatively high degree of health and comfort, or, if sickness and disease have already come upon us, to regain health once more.

Severe and tedious illness in my own person, and gradual recovery from it; experience and observation on myself and other invalids, reflection, and study, have convinced me that there is a curative treatment, which is diametrically opposed to the principles of the predominant medical science and faculty, though it is still much calumniated and ridiculed, and which can effect recovery, even in the most hopeless cases, without the aid of drugs, and often without surgical operations; a method which proclaims the principle that man is a part of nature, intimately dependent on the great universe about us, and that, therefore, he is as much subject to nature's laws as any other organic being on earth.

Following this principle, the new curative method only uses in its treatment of disease the health-factors that are offered us by nature herself — air, light, sun, temperature, water, exercise, rest, massage, hygienic gymnastics, magnetism, electricity and diet.

My book shall prove to you then, dear reader, that disease is cured much more surely, simply, and rapidly by the natural curative treatment than by the medicinal treatment of physicians of the dominant school.

My book shall prove to you that it is not difficult to avoid disease or prevent its outbreak if you follow a natural mode of life, and that by this means you are always in a position to neutralise and to overcome the evil and the injury that is perhaps involved in your occupation or business.

My book shall further prove to you that the conditions and principles which keep a man in health are also the only ones that can restore him to health; and that patients who



have been given up by the most famous professors and physicians of medical science have at length been saved by the curative treatment that is based on natural law.

Finally, my book shall prove to you, dear reader, that this beneficent curative treatment, still so much misunderstood and misrepresented, will completely revolutionise existing medical science, and that it is, in the true sense of the word, the popular curative treatment of the future — as indeed it already is, to some extent, of the present. Very largely in Germany, and, to a lesser extent, in England, it has already penetrated into every stratum of the population. This popular curative treatment has for its object the health of the people, and that is the same thing as the prosperity of the nation. Only a healthy people will be happy, contented and strong.

May my book render the greatest service in thus promoting the welfare of the people.

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In these words the Author introduced his work to the public in Germany some four years ago. How correctly he had interpreted the popular craving for a natural science of health, and how ably and adequately he had met that craving with his great work, may be easily gathered from the fact that already no less than 130,000 copies of it are in circulation in the original tongue, besides other translations. In spite of the persistent hostility of professional men, whose methods it so severely criticises, it has been honoured with three gold medals at hygienic exhibitions, and stamped with the cordial approval of a large number of eminent physicians of reformed views.

There is so close an analogy between the general conditions of life in England and Germany, that the work has required little adaptation to make it appeal with the same great force and render the same high service here as it has done in Germany. Where it was necessary this adaptation has been carefully attended to, and the work is now presented to English readers, in the confidence that it will give an adequate response to a wide-spread desire for sounder information on the subject of health and disease.

THE TRANSLATOR.





PART I.

**The Science of Health.**

“Health is more frequently a matter of  
imagination than sickness.”





## 1. The Causes of Disease.

Nothing in the world should be of greater concern to a man, nothing should be considered of greater value, than the preservation of health. It should be his most earnest desire to enjoy continuous good health. The sound man alone is capable of vigorous action, and so prepared to meet with confidence all the demands of the present feverish and exciting struggle for existence. It is, indeed, no empty form of words to say that "health is wealth."

But what is the actual condition of men to-day with regard to health? It is not too much to say that no article is more frequently offered and more urgently demanded on the "market of life" than this quality of health.

Think of the hosts of medical men and the countless hospitals that are scattered over the face of the globe, the millions of patent medicines, nostrums, and galvanic remedies, and the many hygienic methods that we find recommended in our journals and periodicals every day; and you will soon come to the conclusion that the greater part of the human race is diseased.

Unhappily, that is the case. The majority of men are diseased. We very rarely meet a man who is in the enjoyment of continuous good health. Nearly everyone is afflicted with some ailment or other. Then there is the army of epidemic diseases that break out in one place after another. In a word, whichever way we turn, we encounter disease and illness in the most diverse and most frightful forms.

If we seek the origin of all these sufferings, that have such serious consequences both in the social and the domestic spheres, we are driven to the following conclusion: — Mankind is so sick and diseased, afflicted with so vast a crowd of ailments, because it has entirely departed from a natural way of living and fallen into unnatural habits. Men must, therefore, make it their chief aim in life to preserve the



body in health by a natural manner of life, or, if it is already diseased, to restore it to health by natural means. For happiness and unhappiness are closely connected with health and sickness.

What are all earthly blessings, such as wealth and honour, to the man who is burdened with disease? The invalid is indifferent to everything. His sad and miserable condition and his continual pain leave no room for any feeling of enjoyment; all hope is stifled in him, and trouble and care weigh more heavily on him than on the healthy man. One would naturally infer that every man would be most seriously and conscientiously concerned to protect and foster his health as the most valuable and irretrievable of all earthly goods. Far from it! As a rule, a man only begins to think about his health and to appreciate it when he has lost it, and in many a case it is then lost for ever.

At the same time the unfortunate conditions of modern life have the chief share in producing our innumerable ailments. Our professional medical men very rarely teach the healthy man how he must live in order to avoid disease and to preserve his health unimpaired.\* People, moreover, are not always able to ascertain and teach themselves which mode of life is the most suitable for keeping them in good health.

In addition to this, the conditions of the occupation of many, if not of most men, are so unfavourable as to make it impossible, or at least extremely difficult, for them to keep themselves in good health. Long hours of labour, continuous sedentary employment, often in badly ventilated rooms, and the breathing of injurious fumes and stenches, as is so often the case in our large workshops (chemical works, etc.), nearly always plant the germs of disease and sickness.

Then poverty, with its bad and irregular nourishment, neglect of the care of the skin, wretched clothing and insanitary dwelling, its privations, cares, and troubles of every kind, produces a diseased organism as a natural consequence.

However, a certain indifference on the part of the individual to systematic hygiene is responsible for a large number of the

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\* We may briefly enumerate the principal elements of a natural manner of life as follows: Diet, Air, Light, Warmth, Water, Exercise and Repose. And the same elements that represent the chief conditions of our well-being are also the chief healing-factors for the diseased body (natural curative treatment).

diseases that are prevalent to-day. Wherever we go we find the same dread of fresh air; in many cases it is encouraged to some extent by the very men who have chosen disease-cure as their profession, and who, as we have already said, should be mainly concerned to teach people how to avoid illness, and to see that the rules for avoiding it are properly observed. Good, fresh air, rich in oxygen, hurts neither the sound nor the sick, neither the adult nor the child. If the clerk or the toiler in the factory and workshop cannot always avoid the evils of an atmosphere saturated with human exhalations and other effluvia, he can at least, with a little good will, secure a better ventilation in his domestic arrangements, in his living and bed-rooms. But what do we find? In bed-rooms, in which the entire family spend the night in several beds, not a single window is opened throughout the night. Probably there are also other pieces of furniture (wardrobes, chairs, baskets of soiled linen, etc.) and various objects in the room, which still further lessen the available space, and curtail the supply of air which is so necessary to the breathing of the sleepers. Can we be astonished that such chambers, intended for the purpose of refreshment and rest after the toil and labour of the day, become nurseries of disease and the cause of a terrible shortening of life? No one can imagine the state of the air which is found in such rooms in the morning! If a man goes into one from the fresh air, he springs back instinctively before the noxious vapour it contains. Yet people wonder why it is that in the morning, instead of feeling refreshed and strengthened, they wake with giddy heads and limbs as heavy as lead, and need some time to recover from the effect of their unnatural and unhealthy sleep. It is well known that the body gives off more vapour during the night than during the day, and the lungs breathe more fully and deeply during sleep. Hence if all the windows are closed and several persons are sleeping in the same room, one poisons the other by his expirations and exhalations instead of letting them out into the fresh air; instead of air filled with oxygen the sleeper takes into his lungs a mixture of different effluvia — the material of disease and epidemic. It is, therefore, absolutely necessary, both in summer and winter, that a window be left open all night, both at top and bottom. The fresh air pours in at the bottom, whilst the bad, exhausted, and injurious air finds its way out at the top. And even during the day the windows



of the bed-room must be left open in all seasons, so that the free entrance of fresh air may destroy any material of disease or germs of contagion which may lurk in the beds, etc. "Ventilation," says the hygienic adviser, Dr. Paul Niemeyer, "is the best disinfectant."

It is just as bad in the living rooms of the people of to-day as in their bed-rooms. Very rarely is the room aired — only, for instance, when it is scrubbed or cleared out, and then people hasten to close the window once more. That is by no means sufficient. The window should be open at the top, at least, continually — by day and night — so that the vitiated air may pass freely away. And from time to time it must be opened at the bottom to let in a stream of fresh air. You will say, dear reader, that that is all very well in summer, but would not do in the winter. Firing costs a good deal, and no one cares to warm the streets. Very true; firing does cost a good deal — but the little you spend in addition on coal is richly compensated by the saving in doctors' bills. Illness costs money, sometimes a good deal of money. Be more careful, therefore, to bring the condition of your home and your business into harmony with the laws of health, and, although the better way may go against the grain a little at first, you will come at length to perceive great benefits in mind and body, and eventually in your entire material condition. But as long as you keep up this illusion that fresh air is injurious at night you will be sick and wretched, and, through a prejudice that is unhappily generally prevalent, you will bring your body to a premature death. There is no justification whatever for the fallacy — for such we must certainly call it — that fresh air is injurious to a man either by day or night. But you can and will, dear reader, discover the error of this notion. Make one honest trial of the rational or reasonable ventilation of your bed-room during the day and during the night. Throw off that timidity, and refuse to believe that you will do your health any injury, or freeze to death, as the precious popular belief has it. You will find by the feeling of greater strength, and the clear head you will have when you awake in the morning, how much good it has done you. Naturally you must not, at your first experience, draw your bed right up to the open window, or expose your heated body on the bed to the current of night air. That might have disagreeable results, since your body is not accustomed to the air, and

you might catch a cold in the head or some other little unpleasantness. But even this would be of little consequence in comparison with the great benefits which your entire organism will have derived from the experience. In one of the following chapters I shall give you further advice and instruction as to the effect of good, fresh air, and the importance of sound, restful sleep.

But it is not only the dread of fresh air that is responsible for the great crowd of ailments that our "flesh is heir to;" many other causes are at work with it. These are a generally defective nourishment, an insufficient, or entire absence of, care of the skin, impervious and unnatural clothing and bedding, an unjust proportion of exercise and repose, of sleeping and waking hours, and many other defects. In the following chapters of the first part of this work I shall treat of these matters, as well as of the essential natural principles of health, of the proper and improper use of them, health, sickness, etc.; and I invite you, dear reader, to enter with me now upon the chapter dealing with the nourishment of the body — as it ought to be, and as it generally is not.

## 2. What Should We Eat?

If, dear reader, you belong to the middle or the working class, or if you have to take up a position in life which imposes a certain economy and restraint on you with regard to your choice of food and drink, you are pretty sure to tell me that you would be far stronger, more energetic, and more healthy, if, like the wealthy, you could only get plenty of good rich meat and beer and wine. The opinion is, perhaps, the more firmly rooted in your mind because you can only afford to have meat for dinner a few times per week. Wine you never taste, and you do not get very much beer; as a rule, you only get an occasional glass of beer or a drop of spirits to keep up your strength, as you imagine, and generate the necessary warmth of body to withstand the cold of winter.

You are entirely wrong in this, my good reader! The fat paunches of well-to-do folk, and their ruddy, bloated, and heated countenances, which only reveal a grave degree of congestion, are the very opposite of standards of health. Their appearance is very deceptive; in the train of that "health" and strength for which you envy them there are two



evil and sinister forms — one is called gout, the other apoplexy. Very justly in this connection does Dr. Dock, a physician of the natural healing school, say: "Apoplexy, the malady which cuts down so many in the prime of life, and is now so frequently met with, is partly the outcome of a generous indulgence in meat and spirits, as a result of which the blood vessels become tender, then burst, and let the blood into some of the vital organs." High living and indulgence in alcoholic drinks cause diseases of the blood vessels, and consequently lead to apoplexy.

Luxurious living, therefore, is the first cause of the maladies we have mentioned. Yet many eat and drink, unfortunately, as if they had stomachs of brass and a second health; if they are urged to be moderate, they answer at once, "Up to the present, thank God, I feel quite well. When I do fall ill then will be time enough to live more simply and moderately."

Indeed! Many a time it is then too late to reform. Only simplicity and moderation, temperance and self-control, will guarantee you happiness and contentment, and the most priceless gift of health. By confining himself to a simple, unstimulating diet, even the very poorest may build up and preserve a sound digestive apparatus, and thus protect himself against a whole crowd of maladies.

However, a great number of people live intemperately, hence the prevalence of disorders of the stomach. It may be said without exaggeration that every other man has trouble with that organ. People treat it as if it were an indestructible organ, until some fine day a whole series of stomachic diseases make their appearance, to be followed by innumerable other sufferings. The majority of diseases may be traced to a disordered digestion. Gout, rheumatism, diseases of the bladder, liver and kidneys, hypochondria, weariness of life, and many kinds of nervous disorder, owe their origin mainly to disturbance of the digestive system. Bad combinations of humours, and weak circulation and poverty of the blood, are the outcome of immoderate feeding and an impaired stomach.

"All civilization proceeds from the stomach," said a distinguished thinker once. I prefer to say, "All disease proceeds from the stomach."

Rothschild, the famous banker, once went to Wörishofen, in Bavaria, to see the well-known natural physician, Father Kneipp, in order to obtain his advice and assistance with

regard to the pitiful condition of his health. The banker gave Father Kneipp a most exact account of his habits of living, laying special emphasis on the frequency and the character of his meals. With much detail he described the number of dishes he was accustomed to have in his, I am not sure whether it was four or five, meals every day, and he asked Father Kneipp at length whether, after all he had heard and a full description of his patient's maladies, he could say precisely what the banker needed, for his physicians had given now one and now another diagnosis. "Certainly," replied the worthy pastor, "I can tell you exactly what you want — you need a second stomach."

An old, but eternally true, saying runs, "Leave off eating when a thing tastes best." How few there are who follow that advice! On the contrary, people generally begin to attack a dish in earnest when it tastes best.

For once, dear reader, make a trial of this practice of leaving off eating when the food begins to taste most pleasant. You will soon receive the reward of your self-control. You will feel quite another man after your meal. Instead of feeling a fulness in the body, a heaviness in the limbs, a general drowsiness and laziness, you will feel light, ready for work, in good humour and good spirits. Do not be afraid of injuring yourself by eating too little. You will not very easily die of hunger, because it is always possible to make up for what you have missed. But you do undoubtedly injure yourself by eating too much, because in that way you are overburdening your body with ballast which, if it be not regularly removed by the excretory organs (the intestines, the kidneys, and the skin), continually causes an improper mixture of the humours, and lodges in the organs of your body in the form of foreign matter. Not what we eat, but what we digest, serves to provide us with the strength we need. When we put more food into the body than it really needs for its sustenance, we are certainly exacting an expenditure of strength which helps to shorten life. We do not live to eat, but we eat to live.\* Unfortunately, there are so many whose stomach is their god, and who only live in order to eat. But the avenging Nemesis finds them out sooner or later. Disease, sickness, and early death are the inevitable consequences of

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\* Your stomach too well never treat,  
He's a guest, that's most ungrateful:  
To those who give him most to eat,  
He is usually most hateful.



their intemperance. They do not die — they kill themselves: they dig their own graves with their teeth.

I have now told you a little, dear reader, of the value of moderation, but you will be anxious to hear how I can prove to you that such food, or rather such luxuries and stimulants, as meat and spirituous liquors, do the body more harm than good; since I said at the beginning of this chapter that the well-to-do classes are much punished with sickness, the origin of which must be sought exclusively in their constant and excessive consumption of rich and stimulating food.

First of all let us take up the question of meat, which you so firmly believe will give you the greatest bodily strength and a healthy blood. I shall take great pains to show you clearly that meat is by no means the source of strength which you assume it to be, since, like so many others, you cling to the fallacy that only strong food — especially meat, broth, wine, etc. — can set you on your legs again when you are weak and ill. As you are encouraged in that by the actual representatives of medical science, whom you consult in your weak and suffering condition, I shall doubtless find it very difficult to shake you in this deep-rooted belief. Still I shall endeavour to do so, and at the same time to instruct you in a better creed.

“Meat is not a downright poison, although it contains elements, such as creatin, creatinin, sarco-lactic acid and phosphoric acid salts, which have an injurious effect, especially in the sense of stimulating and heating, on our entire organism, and on the nerves in particular” (Dock). You will understand this best if you make the experiment some day of abstaining from meat for a long time, and then returning to it once more. You will then notice a general stimulation, a pulsation of the blood in the body, and restless sleep at night. To begin with, the way in which meat is prepared is injurious to health. Pungent ingredients and spices are sometimes used in cooking and baking which inflame the mucous lining of the stomach, and then excite, or over-excite, the nervous system. A distinguished physician once said: “Dyspepsia is associated with a stomach that is overladen with flesh-meat and piquant sauces.” A further injury that is caused by eating meat is that it usually leads to other indulgences in stimulating food. When you have finished a good beefsteak, you feel little disposition to wash it down with a glass of water; you want a glass of wine or a glass of beer. And

when you sit down to your wine or beer, you feel that you would like a good cigar or a pipe of tobacco. So one stimulus leads to another; one stimulating pleasure is sure to be followed by a second. If, on the other hand, you had taken a dish of good, nourishing milk-porridge, with bread and fruit, you would feel no desire for beer or wine, or for a pipe or cigar, and you would thus spare both your health and your purse.

Scientific men have shown that a meat diet causes an inflamed condition of the coats of the stomach. That is closely connected with the rapid digestibility of meat — a circumstance which you must not regard as an advantage, but as a defect. For whatever the stomach gains in point of time in this speedy digestion, it has to atone for, on the other hand, in failure of digestive capacity. People who live very largely on a meat diet suffer much after their meals from what is called "digestive fever." Even meat soups and broths, which have little or no nutritive value, like meat-extracts, have an exciting effect on the nerves, and accelerate the action of the heart.\*

The stimulation which people feel after taking meat, broth, or spirits, is generally wrongly regarded as a sign of strength, and, in spite of the fact that the old debility returns when the exciting action of these stimulants has gone, people continue to consider them as nourishing and strengthening foods of the first rank.

Oh poor, blind, deluded, sick humanity! The habit of strengthening oneself by stimulating food continues to prevail, and yet, in virtue of the unchangeable laws of nature, a reaction is bound to follow this excitation of the nerves.

Yes, it is unfortunately only too true. Mankind seems really to be growing weaker and weaker, and it only keeps itself on its legs by means of stimulants. Far be it from me, dear reader, to cause you to rush at once into vegetarianism, or a diet of fruit and vegetables; but you must see that a preponderance of meat-diet does you more harm than good. Meat is a heating food. When you are ill, and the doctor

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\* Physicians have often protested against the notion that soup is very nutritious and a useful form of meat diet. But this protest has rarely found a more vigorous expression than in the words of Professor Schweninger, in a recent number of an important medical journal: "Why meat broth is so popular and so generally recommended is utterly unintelligible to us, seeing that its nutritive value is extremely slight, and it is a very questionable food on account of the action of its salts on the heart!"



discovers that you have a fever, he at once forbids you to take meat or spirits, because they would only increase the fever. You can easily understand that the food which is injurious to an invalid cannot be wholesome for the healthy. When you eat meat, in the days of apparent health, you are really in a state of disguised fever which you only fail to recognise because you take this deceptive excitement to be a sign of real strength and health. Some fine day — though it may be deferred a long time if your body is capable of much resistance — an illness comes upon you, which may be of a light or a severe character. It is well known that people who indulge much in meat and spirits easily catch inflammatory diseases, such as typhus, nervous fever, inflammation of the lungs, etc., and it is equally well known that in the case of such patients recovery is much more difficult, and takes a much longer time than with those patients who in their earlier, healthy condition have lived more simply and temperately.

I could say a good deal more in disparagement of a meat diet — that, for instance, carious teeth are caused by a corruption of humours due to an excessive meat diet; that foul breath is especially found in those who indulge in meat and spirits; that the poverty of the blood which is now so common is caused by that very “strengthening” régime which is thought so much of; and that, finally, the immense number of nervous maladies, hysteria, hypochondria, melancholia, and mental disorders, are almost exclusively restricted to the lovers of meat, spirits, tobacco, tea and coffee. I shall, however, only call your attention to one point, that will startle you and make you reflect.

Are you certain that the meat you eat comes from a healthy animal? Yes, you will assure me, I have a guarantee of that, because there are state-appointed inspectors who have to examine the cattle or the meat, and only allow thoroughly sound meat to be offered for sale.

Indeed! Then you do not know, dear reader, that when diseased organs are discovered at the slaughter-house these alone are removed, and the rest of the carcass is put on the market; as if the body of an animal were different from that of man, in which, as pathology\* teaches us, when one organ is diseased, the whole of the body, the entire life of the

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\* The science of diseases.

blood and the nerves, is drawn into sympathy with it. Can you be confident, then, that you always eat sound meat? Do you think a beast is healthy that has been reared in a stall filled with a most vicious atmosphere, standing in it from one end of the year to the other without exercise? Are not cattle afflicted to an enormous extent with spleen-disease, murrain, and foot and mouth disease? Professor Gerlach says: "Tuberculosis has a greater preference for the cow than for any other animal, except perhaps the ape." Then there is the unnatural fashion of stall-feeding, which produces an artificial disease, morbid obesity, in cattle. Perhaps you will say it is not a disease? How often do we hear of cases of trichinosis, in spite of all precautions, which exact a heavy penalty in human lives!

How often does the eating of diseased beef or pork cause tape-worms!

And if meat which is not quite fresh is injurious to health, what shall we say of bad meat that is already decomposing? Yet how frequently do we not find this to be the case in the summer! There are many who, though not pure vegetarians, refrain from eating meat altogether in warm weather, because it is so liable to putrefy. As soon as rigor mortis sets in the process of the decomposition of the flesh begins, and its prejudicial action cannot always be perfectly suspended by the preparation in the kitchen.

As physiologists have proved, only purely vegetable food is digested in the human stomach; the consumption of meat merely continues the process of the decomposition of the animal corpse. The process of digestion was observed in the case of a patient who had a fistula in the stomach, through the opening of which one could see into the stomach, and it was carefully noted how much time different kinds of food and drink took for digestion. It was thus possible to draw up a complete table\* of the ordinary articles of diet and their times of digestion; and it was discovered, with no slight degree of astonishment, that only vegetable foods were digested, in the proper sense of the word, and the animal food that was eaten simply continued to putrefy. Hence it is that fashionable people like game best when it is "high," that is, when it bears marks of decay and decomposition, so that it

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\* See under the heading of "Table of Nutritive Foods."

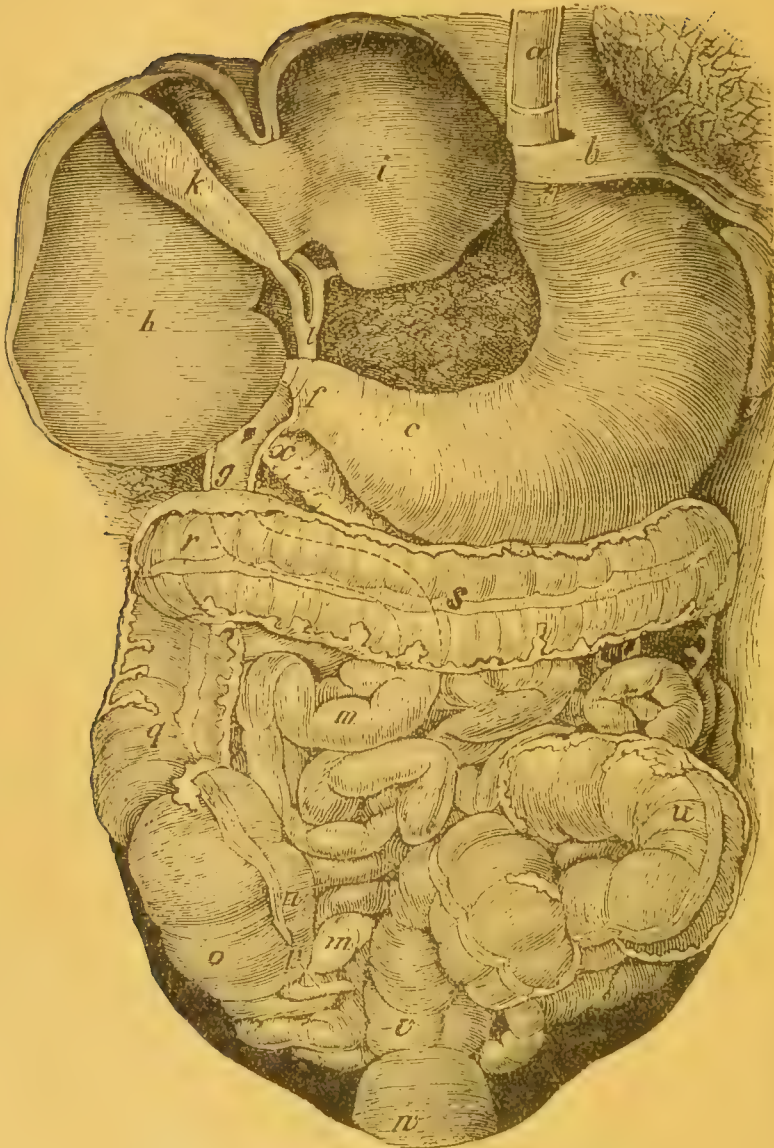


Fig. 1. The human organs of digestion.

The liver is placed upwards so that its under surface is seen.

a. The œsophagus or gullet. b. The diaphragm. c. The stomach. d. The orifice of the stomach. e. The splenic end of the stomach. f. The pylorus. g. The duodenum (with opening for the admission of the bile and pancreatic juice). h. Right, and i. Left lobes of the liver. k. The gall-bladder, l. Bile-duct. m. The jejunum. n. Entrance of the small into the large intestine. o. The cœcum. p. The appendix vermiformis. q. The ascending colon. r. The right bend of the colon. s. The transverse colon. t. The left bend of the colon. u. The descending colon, with S-shaped curvature. v. The rectum. w. The bladder. x. The pancreas. y. The spleen. z. The left lung.



will be the more easily digested — in other words, in order to spare their stomachs a part of their work.

Now that I have shown you, dear reader, the evils of a flesh-diet, I trust that you will no longer regard this pleasant and stimulating food as true nourishment. I shall presently give you a list of nutritious foods of a vegetable character, which have not merely as great, but a far greater nutritive value than meat. I shall treat later on of the real value of spirituous liquors (alcoholics), and of tea, coffee, and tobacco (narcotics.)

For the moment I wish to draw your attention to the following points. I have shown you the evil consequences of meat-eating, not only for the purpose of warning you against a preponderant or excessive indulgence in it on account of the danger to your health, but I wanted particularly to make you cease to regard meat as a direct means of nourishment, as it is popularly supposed to be. Lay aside the notion, then, that when you feel weak and upset, you can regain your strength by eating more meat. You will only make yourself worse than ever by doing so.

Think of the many children of the wealthy, the hundreds of anæmic, poor-blooded women and girls, who are overfed with strong foods and drinks (meat, eggs, soups, wine, etc.). Are their ailments lessened at all by such a diet? Are not the children of the wealthy sickly and frail in spite of all their rich diet?

Do not, then, seek the cause of your illness in the want of stronger—that is, more stimulating and exciting—food. Plenty of other causes, which are frequently enumerated in this book, may be assigned for it. It may be a neglect of the cleanliness of the skin, a long continuance in a vitiated atmosphere, the taking of too much medicine, an injurious occupation, or a thousand other things that have caused your illness. First of all remove these causes, and then you may hope to recover your health. But do not hanker after stimulants that will only increase your malady if you take them. If you are accustomed to taking meat, continue to do so in moderation, but live chiefly on a vegetable diet, and only regard meat as a relish.

Even a simple blade of grass contains all that the body of huge animals (the ox, the horse, and so forth) needs for its growth, its maintenance, and its capacity for the heaviest labours. How much more nourishment must there be in the

fruit of cereals and leguminous fruits! In many countries the people are entirely restricted to such food. In Galicia, for instance, the peasants live almost exclusively on a vegetable diet, only tasting meat once or twice in the year. The result is that the population is healthy, vigorous, and intelligent. In England we may study the Italians who are often employed in making the roads (asphalt). They have only their polenta at every meal, a sort of maize-porridge, which they make with a little fat. They entirely avoid meat and spirits. Their employers and foremen affirm that these Italian workmen not only live more temperately than our own, but they are capable of much greater bodily exertion without the aid of meat, beer, and spirits. You see then, dear reader, that these foreign labourers can do excellent work without stimulating food and drink. Hence you will now lay aside that popular prejudice that in colder countries, especially in winter, it is necessary to eat plenty of meat, and fat meat, and drink alcoholic liquors in order to enable the body to withstand the influence of the weather and increase its warmth. As you know, the Italians, coming from the warm, sunny lands of the south, work in the colder northern climate without any change whatever in their diet; the most they do is to put on warmer clothing — as we do ourselves. But I have seen very few Italians, save in exceptional cases, take spirits, either out of social considerations, or because, being on a journey, they could not avoid taking unaccustomed food and drink at the inn.

But I have never seen an Italian workman inebriated. On the other hand, I have often observed them making for the post-office on Saturdays, in order to send home what they have saved from their wages. They scrupulously avoid the public-house.

This simple and temperate kind of life not only makes people strong and industrious, but it enables them to save money, and so lays the foundation of a modest prosperity. How strikingly these Italian workers belie that expensive prejudice that "only meat gives strength."

A diet that is mostly vegetarian enables us to get through our work with perseverance and regularity, and without undue fatigue; only we must take care to choose nutritious food, and especially we must pay proper attention to the cooking of it.

In the first place the leguminous foods — lentils, peas, and beans — far surpass meat in nutritive value, and are devoid

of its injurious heating elements. They contain plenty of albuminates — in general from 10 to 15 per cent. more nourishment than meat, and, on the other hand, they contain less water. Leguminous fruits are not only a very agreeable dish, but they may completely replace meat as sources of strength. Yes, you will say, dear reader, that is all very good and very true, but they are not easy to digest, and they are very flatulent. Certainly, I must admit that they are difficult to digest when they are badly cooked, or when they are accompanied with an otherwise injurious and unnatural mode of life. Not only leguminous foods, but a vegetarian diet in general, cannot be reconciled with confinement to the house. A vegetable diet, being our natural diet, demands plenty of exercise and work in the open air; but in those conditions it has a marvellous effect in strengthening the body and infusing energy into the mind.

I advise anyone who is not familiar with leguminous foods to prepare them in the following manner. It does not matter whether they are lentils, peas, or beans. They must be washed the previous evening, put in water, and allowed to stand in it all night. On the following day they must be cooked in the water they have been standing in all night. The water must not be thrown away, as is often very wrongly done, because the nourishment of the beans or peas has largely passed into it during the soaking. Then, when they have been rightly cooked, they must be passed through a colander, in order to separate the husks, and they are ready for the table. A little salt or butter may be added during the cooking in order to make the dish more tasteful.

If these leguminous fruits, generally considered to be difficult of digestion, were prepared in this way, even people of sedentary life could take them without any detriment to their health. For the workman especially, who needs great strength of body, this extremely nutritious food is much more suitable than the "spirits-potatoes-coffee-diet" that he unfortunately likes so much.

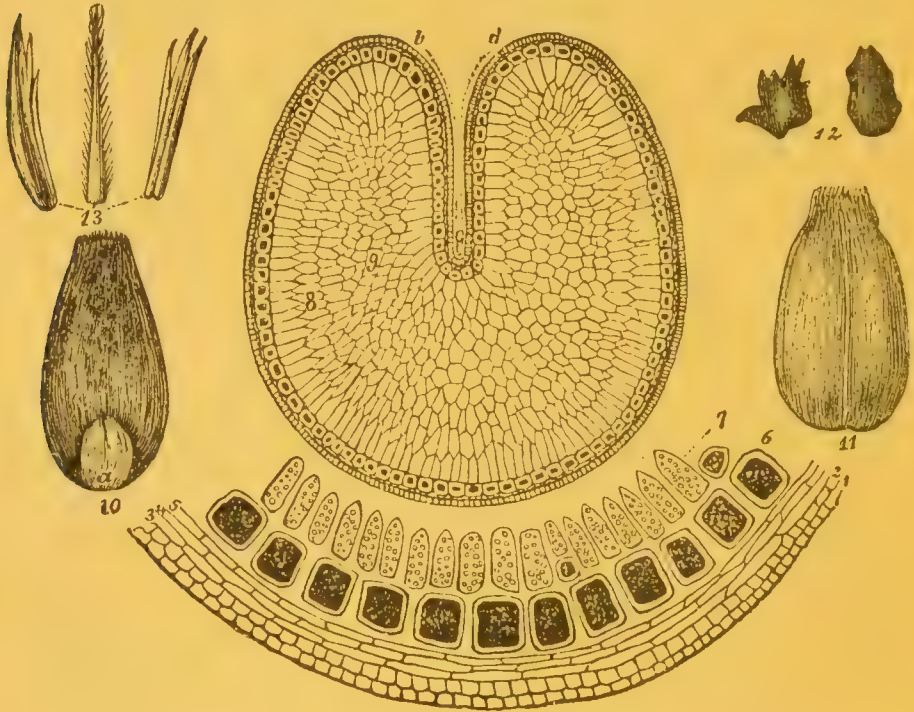
Immediately after the leguminous fruits, in respect of nutritive value, we must place the familiar cereals — wheat, rice, oats, barley, and maize, etc. I have already mentioned maize in speaking of the Italian labourers and their chief article of diet, polenta, which is capable of giving them so much vigour and vital force.

The cereals also contain all the necessary elements of



a perfectly nutritious food — albuminates, plenty of starch, gluten, and traces of fat.

The cereals have a particular importance on account of their use in the making of bread. Nevertheless, the bread that is generally baked and eaten, fermented and salted as



**Fig. 2. Anatomic structure of a grain of wheat.**

(From Lehrenkraus: "Prof. Dr. G. Jäger's life-sustaining foods.")

The grain of wheat consists of the mealy nucleus and five superimposed layers. Three of these layers form the outer shell, and two enclose the nucleus. Nos. 1 and 2 indicate the outer skin, mainly composed of woody fibre. Nos. 3, 4, 5, and 6 contain the most important nutritive elements, the phosphates and albuminates, which, however, are usually wasted in the customary way of preparing the flour. Nos. 7, 8, and 9 represent the ordinary flour, consisting chiefly of starch. No. 10 shows the grain of wheat with the germ (a) and the beard. No. 11 shows the grain from the other side. No. 12, pieces of bran. No. 13, pieces of beard, husk, and spelt. b, c, and d, bent-in portion of the outer skin.

it is, does not furnish all that a natural mode of living demands of so important an article of diet. In the first place neither yeast, leaven, nor salt should be used in making the dough. Then the bran must not be removed; in fact the corn must not be ground, but bruised in specially constructed mills. This coarse meal, therefore, contains the bran, an

element that has an importance in digestion and nutrition, which is, unfortunately, still too little realised. The bran contains in its gluten the finest and most nutritious elements of the meal, especially the phosphates,\* and it is a pitiful waste to set it aside in making bread and give it to the cattle, as is so often done.

Moreover, the use of wholemeal bread has the following advantages: It causes an increased flow of the pancreatic juice, it stimulates the glands of the stomach to the production of more gastric juice, and it causes a mechanical irritation of the bowels, thus securing a better discharge of the fæces by overcoming a certain sluggishness of the bowels.

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I shall devote a special chapter of my book to pointing out the great importance of wholemeal bread. The seriousness of the subject requires it. For listen to this, dear reader: Grains of wheat contain of themselves all that the human organism needs for its growth and sustenance. A wholemeal bread diet is also much more profitable when fruit is added. People who suffer in their digestion are, therefore, often put on a régime of wholemeal bread and fruit, with the best of results.

Let us hear now what a distinguished physician has to say about our wholemeal bread. We refer to the Dr. Dock whom we have mentioned before. For many years he has been a strict vegetarian, and his glowing health, his activity, and his fresh and bright appearance, are the best argument possible against the prejudice which is opposed to a vegetable diet.

"Not only at table," says Dr. Dock, "but even in what are called medical stores, wholemeal bread occupies a place of honour, for it nearly always heals in a natural manner the unpleasant and sometimes serious trouble of constipation. It is well known that this very common complaint often has most injurious consequences, as, for instance, debility of the bowels, plethora in the abdomen, hemorrhoids, torpidity of the liver, and even profound mental trouble, from depression to melancholia. And in this respect our bread has had extraordinary results. Hundreds owe to it, without the assistance

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\* Phosphorus is very important for the nourishment of the substance of the brain. "No phosphorus, no thinking," said, if I am not mistaken, Moleschott.

of the chemist, their recovery from the aforesaid trouble, so that we cannot sufficiently recommend it to those who are afflicted with sluggish bowels. Wholemeal bread has the exceptional advantage of being nourishment and medicine at the same time; it has not the evil effect, like most physics, of injuring the body, and the taking of it is not restricted to any length of time. It is so well suited to our body, that we may take it all our lives, and we have in it a means of overcoming the sluggishness of the bowels all the time. Hence it mends the mischief which has been done by aperients, for it is well known how injurious they are — they help, perhaps, for the moment, irritating the bowel in their unnatural fashion, but they lead to a still worse sluggishness and debility as a reaction on this stimulation. Whether we are medical men or not, we cannot sufficiently commend wholemeal bread in this respect. In most cases it proves its value at once; I know only a very few cases where it failed to serve — and they were generally cases where drugs had already destroyed everything.”

Such is the opinion of Dr. Dock. In eating wholemeal bread thorough mastication and insalivation is an important point. The saliva which is thus imparted to it helps the process in the stomach in two ways. On the one hand the alkalies of the saliva correct a part of the somewhat injurious fermenting acids in the stomach; on the other hand the fermenting material in the saliva, which causes the germination of the wheat-grains for the conversion of starch into dextrin and sugar, finds its way in such quantities into the stomach that it can itself produce the essential action of digestion.

How many tasteful, nourishing, agreeable, and pleasant dishes can we not prepare from rice, barley, oats, or maize — with or without the addition of milk! Oatmeal, for instance, is a food that cannot be too highly appreciated in respect of its nutritive value. Women who are seeking a return of strength after giving birth to a child, or who wish to increase the formation of milk, are given pure oatmeal-gruel.

And how important a part oatmeal plays in the nourishment of children! In diarrhœa and many other gastric disorders oatmeal porridge is a quite exceptional and indispensable remedy.

Rice contains more carbo-hydrates and less albuminates. On that account it needs the addition of milk, eggs, etc.; or it is best cooked with leguminous fruits, as these foods are richer in albuminates.



Barley-gruel, and similar foods, are both good nourishment for the sound and medicine for the sick. Buckwheat, millet, tapioca, and sago are also nutritive cereals, which are of general use in the kitchen.

As for vegetables, they are very refreshing and cooling food-stuffs. They contain chiefly sugar, starch, and dextrin, but few albuminates. They form a most suitable food in company with other dishes, and, properly prepared, they may be recommended even to chronic sufferers. Spinach is a good blood-forming food, containing plenty of iron. On the other hand dyspeptic people are to be warned against certain kinds of cabbage.\*

The potato consists chiefly of starch, and is indispensable for accompanying leguminous fruits, cereals, and greens. A good mealy potato, roasted or boiled, is quite a delicacy. We can eat them day after day, like bread or fruit, without getting tired of them. However, like rice, they need a companion, and so it is best to take them with a little butter, or milk, or buttermilk.

Fruit also, either raw or cooked, is an excellent and healthy food; it is entitled to much more consideration than it usually secures in the question of nourishment. It contains principally sugar and dextrin, but few albuminates. When it is taken together with other food, its chief advantage is to diminish somewhat the nutritive value of albuminous substances — such as wholemeal bread, or cereals — so that our organism may not be overloaded with albumen, for an excess of albumen is extremely hurtful to the body. Children are always very anxious for fruit, and even adults take plenty of it and enjoy it. It is usually credited with the quality of improving the blood, and the belief is not incorrect. It makes a great difference whether a man forms his blood from beer and sausages or from wholemeal bread and fruit. The blood would be much thicker in the former

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\* Dr. Joseph Wiel arranges vegetables in the following groups:

"Tubers and tuberous roots: potatoes—rape—turnip-rooted cabbage.

"Roots: carrots—comfrey—turnips—swedes—beet-root—parsnips—horse-radish—radishes—celery—lettuce—turnip-rooted lettuce.

"Sprouts: asparagus—young hop-twigs.

"Cabbage: sorrel—spinach—garden-orach—mangolds—garden-centaury—sea-kale—curly-cabbage—rose-cabbage—white, red, and blue cabbage—dandelion—endive—purslane.

"Flower-plants: cauliflower—artichokes." [Plenty of choice, is there not? The Author.]

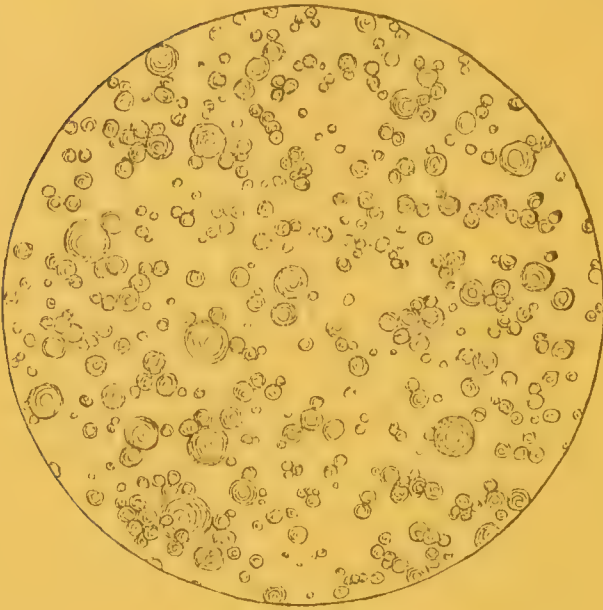


Fig. 3. Fat in unadulterated milk\* (magnified 600 times).

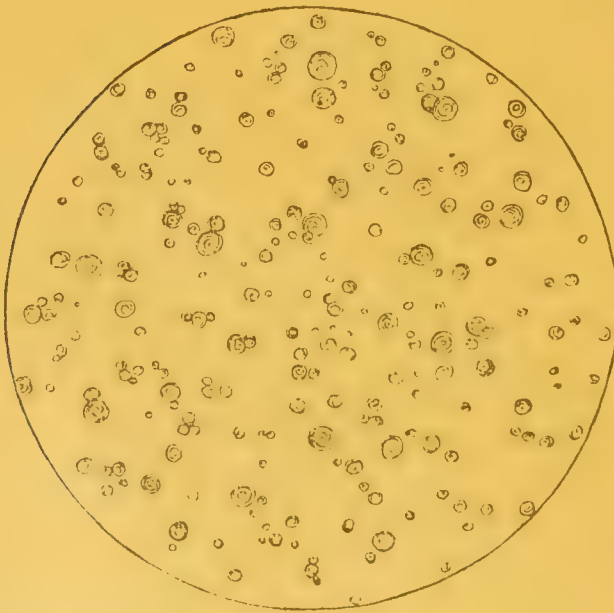


Fig. 4. Watered milk (magnified 600 times).

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\* See, further, under "Milk," in the alphabetical part of the work.

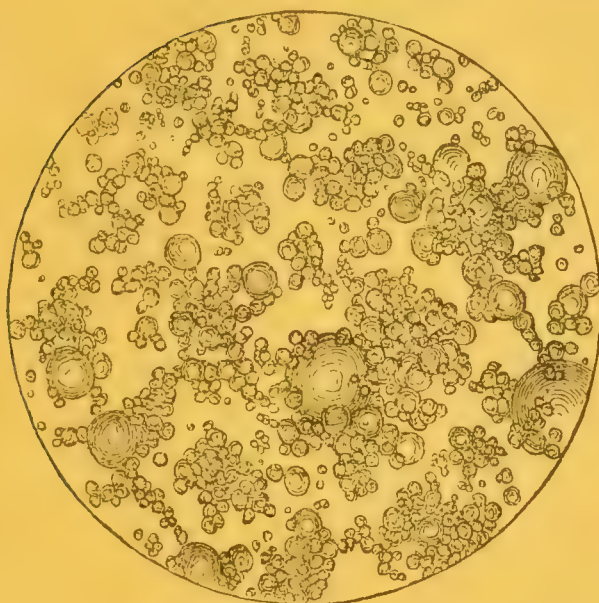


Fig. 5. Cream (magnified 600 times).

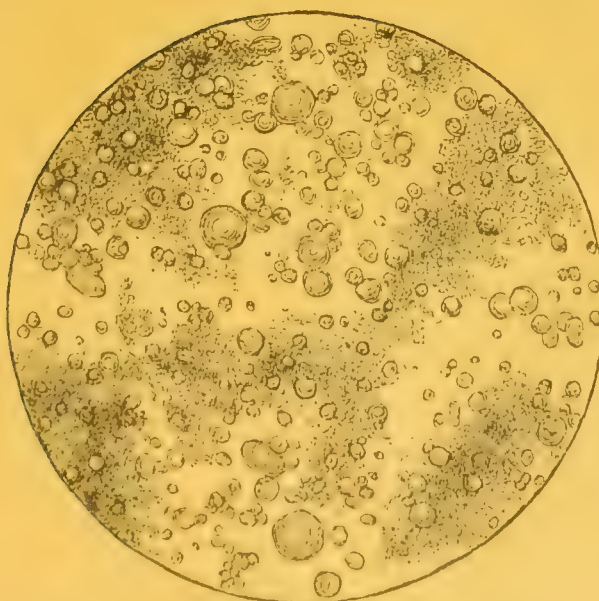


Fig. 6. Sour milk (magnified 600 times).



case. Fruit certainly makes the blood good and pure, since it helps digestion and stimulates assimilation. It also cures obstinacy of the bowels, and increases the activity of the kidneys and the urinary organs. In troubles of the breast and the abdomen, grapes, for instance, are of very great value. In cases of chronic constipation, inflammation of the digestive organs, rheumatism, gout, and disorders of the liver, bladder, or kidneys, fruit cannot be sufficiently recommended. As it contains plenty of water and acids, it will be found very cooling and refreshing in feverish conditions, when doctors generally prescribe acidulous drinks. The patient is permitted to quench his thirst with the juice of fruits, mixed with water, or lemonade, or raspberry-wine, and so on. But above all fruit should be given to children. Wholemeal bread, fruit, and milk, is the best diet for them.

And what a variety of fruits we have to choose from! In our own climate we have cherries, plums, pears, apples, apricots, grapes, peaches, currants, gooseberries, raspberries, bilberries, strawberries, blackberries, and many other kinds. From abroad we get raisins, dates, figs, bananas, pomegranates, oranges, lemons, pineapples, and other fruits. In summer we prefer fresh fruit; for the winter we cook or dry it.

It may be true that fruit is not sufficient of itself to support a man in our climate, because of the vigorous mental and bodily work we have to accomplish for our maintenance, but in other, and especially warmer, countries there are plenty of men who eat nothing else but fruit. The fruit of the bread-tree and figs and dates are sufficiently nourishing to support a man. The Arab who travels about the desert on his camel under a brilliant sun takes nothing but figs and dates and water.

During long and fatiguing journeys in Paraguay, lasting sometimes from ten to twelve hours, I often ate nothing else but roasted maize, boiled manioc,\* and oranges. And this simple and unstimulating diet, mainly consisting of fruit, made me very fit for these great exertions under a tropical sun. It is very questionable whether I could have endured them if I had had the ordinary so-called "strong" food (meat, eggs, etc.)

I have now, dear reader, sung the praises of fruit at

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\* Manioc is the name of an American shrub, of which the root is eaten. It forms a substitute both for bread and potatoes.

some length, and I cordially hope you will gradually accustom yourself to taking more and more of it. If you have any trouble with your digestion or your bowels, make it a rule to have fruit at every meal. For instance, if you were to take two or three dried figs (the figs you buy in the shops in England) at night before going to bed, you would notice a distinct "change of weather" in yourself in the morning. Perhaps you will have to arise an hour or two before your usual time on account of the motion of the bowels; that will teach you the efficacy of fruit.

An important place amongst foods must be given to eggs, milk, butter, cheese, and sugar. Milk and eggs, for instance, contain all the nourishment that is necessary for the growing body — for which they were originally intended. Milk will be found a very good food by those who live a regular life, take a proper amount of exercise, do not eat too much meat, and are not ashamed to drink water. For children it is a most excellent form of nourishment. Many a person who has digestive trouble can take milk very well, but for others it is less suitable. On the other hand, people who suffer from liver complaints or congestion, of the stomach cannot take milk at all.

It is advisable not to boil\* milk, but to take it warmed only. Digestion in the human body is a process of fermentation. Hence if you boil the milk and so deprive it of the power of fermenting in the stomach, it becomes indigestible. Dishes which are prepared with milk are as a rule wholesome and easy to digest.

Even sour milk and buttermilk are excellent foods. Buttermilk is very good for people who cannot take milk on account of stomach trouble. Let the patient eat buttermilk when he is hungry, and drink it when he is thirsty (Wiel). Cheese is also a very nutritious food, though it is generally considered difficult of digestion. It is said that "cheese is gold in the morning, silver at noon, lead at night." I should rather confine this indigestibility of cheese to those kinds that contain most fat, although even new cheese and curds are thought indigestible. The latter, however, is not very difficult to digest, and both are to be recommended in preference to all other kinds of cheese. According to Prof. Reclam, M.D., white curd-cheese, seasoned with a little salt

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\* It is well known that boiling milk deprives it of its fermenting quality.

and caraway, and with a little milk added, is equal to baked meat in nutritive value, and is preferable to it in point of digestion. With potatoes it is very pleasant to take.

Dr. Reclam, the distinguished hygienist, goes on to say: "Young cheese still white, or only turned a little yellow at the outside, may be taken as a perfect substitute for meat, and should be more appreciated in this respect. Old, "matured" cheese, that is yellow throughout, only serves as a relish [a stimulating food — Author] and, as is thought, for furthering digestion in adults. It is injurious to children."

Butter, or the fat that is taken from the milk, is a wholesome food, provided it is fresh and sweet. It is advisable to take it in moderation. The present high prices of butter will serve of themselves to prevent too generous an indulgence in it. "Especially for people who have to work hard, the use of butter, and of vegetable fats, such as cocoa-nut butter and olive oil, is good for the health" (Dr. Reclam).

Sugar is an indispensable form of nourishment: it is made from the juice of the sugar cane, and now generally from beet-root. We take a good deal of it, moreover, in other foods, in vegetables, roots, fruit, milk, wheat, meat, and so forth. Sugar is not merely an article for sweetening our food; it is an easily digested and admirable form of nourishment. If it is eaten by itself as a sweetmeat it injures the teeth and the stomach. Confectionery, therefore, should be taken only occasionally — by no means every day.

Honey is just as wholesome as sugar, if it is taken in moderation. It is good to spread it on bread.

Eggs, whether raw or boiled, are one of the very best kinds of food. Hard-boiled eggs are generally thought to be indigestible. But if they are carefully masticated, and not swallowed in large pieces, they are just as easy to digest as the more lightly boiled. This circumstance ought to be much more widely known. The yolk of the egg is more nourishing than the white; but the latter is the more easy to digest, because it contains less fat than the yolk. The white of an egg consists, according to chemical research, of about 14 parts of pure chemical albumen and 86 parts water. For women with child, thin-blooded, anæmic, and convalescent people, eggs are an excellent food.

I have now, dear reader, enumerated the ordinary kinds of food. If you want further information about this or that food, or about foods, condiments, etc., that I have not men-



tioned, you will find them in the alphabetically arranged part of this work, where each of them is treated more fully. It was my intention at present merely to run over the generally-known kinds of food, in order to make you realise to some extent the defective character of ordinary diet, and to prevent you from thinking that meat is the only strengthening food for your body. I repeat that point, and I close this chapter with a few paragraphs that will show you that, according to the original and still uncorrupted ordering of your nature, you are really destined for a fruit diet.

There are distinguished anatomists who hold that man, on the strength of his organisation, is a fruit, and not a meat-eater. "Man," says Dr. Nichols, "rises above all the other animals in moral and mental development; but in his bodily structure and his wants he remains an animal. In point of structure he closely resembles the frugivorous animals. He has hands to pluck fruit, front teeth to bite it, back teeth to masticate it, a stomach and a proportionately long alimentary canal to digest it."

Professor Haeckel says, in one of his lectures: "Whatever part of the body you take for comparison, you will invariably find that man more closely resembles the higher apes than these do the lowest kinds of monkeys."

The highest apes — the orang-outang, the chimpanzee, and the gorilla — live on fruit alone. Their hands are intended for plucking fruit, their teeth for crushing it, and their alimentary organs for digesting it. On the other hand, the teeth, claws, stomach, and intestines of the carnivorous animal show clearly that nature intended it to live on flesh. The horse is constructed for a diet of grass and corn.

Dr. T. L. Nichols says, in his "Dietetic Cure": "Drinking alcohol is more natural than eating the dead body of an animal. It is well known that some races have religiously devoured human flesh, but no one will contend that men ought to eat each other. When you tell people that meat eating is not natural and not wholesome for a man, they ask: But what shall we do with all our animals if we do not eat them? The question naturally applies just as well to horses, asses, dogs, cats, and rats, as it does to sheep, pigs, and oxen. Hawks and crows eat carrion, and men who like their game "high" follow their example. But the eating of the corpses of dead animals is not the cleanest, highest, most natural, and most wholesome diet for men. Man is at his best when

he uses the most suitable diet for his sustenance. In proportion as he departs from that diet, he estranges himself from a healthy condition. Every digression from it means a disturbance or disorder in his life. Unnatural food is difficult to digest, and leads to debility of the digestive organs. Then come inflammations and congestions. The bowels are ruined by costiveness or over-excitement. The effort to free the body from too great a quantity of food or from the stimulants contained in it, produces fever. Coarse, fatty, animal food destroys the liver and the kidneys. The skin cannot get rid of the superfluous matter. Heavy meat eaters get the gout, and are liable to apoplectic strokes. Impure blood, made from unnatural and often diseased food, causes scurvy, scrofula, lung-disease, consumption, skin-diseases, and cancer. In a word there is not a single one of the diseases that afflict humanity that cannot be caused by an unnatural diet. It is what we take into our bodies — the bad air we breathe, the improper food we eat, the impure water, or the exciting and intoxicating liquors we drink — that makes us ill, clouds the mind, inflames the passions, and shortens our lives. We mar the beauty of the world. We fill it with pain and sickness, with sin and sorrow, with wanton misery and premature decay. We kill ourselves by our vices, and, as though that were not enough, we slaughter each other in battles, the horrors of which increase tenfold the horrors which we regard as our normal peaceful condition.”

### 3. What Shall We Drink?

If you ask me, dear reader, what you should drink to quench your thirst, you will, if you have attentively read the previous chapter and weighed my advice as to a natural diet, expect only this answer — water, good, pure, drinking water; for alcoholic drinks, such as wine, beer, and spirits, and narcotic\* drinks, such as coffee, tea, and chocolate, are only stimulants and stupefying beverages.

Water is at the root of the life-process throughout the whole of creation; metabolism\*\* cannot be accomplished without it. Plants die from a continued drought; and water is equally indispensable to men and animals. They die of thirst more

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\* Literally — stupefying drinks.

\*\* See the chapter on “Metabolism.”

quickly than of hunger. The human body is made up of water to the extent of about 70 to 80 per cent of its weight. In all drinks, and even in solid foods, such as fruit, vegetables, leguminous fruits, cereals, and meat, water is the chief ingredient.

Hence water is a kind of food without which we cannot live and sustain our health.

It is especially advisable to drink a glass of fresh spring or well-water first thing in the morning, again an hour or an hour and a half after dinner, and finally on going to bed. Fever patients may have water to drink at any time, but not ice-cold water, and only a little at a time. The water that is taken into the stomach helps to remove any impurities in it, or any food that may remain undigested; it also cools the mucous lining of the stomach, and strengthens the glands that secrete the gastric juice. The water is then taken into the blood, and drives out its acidity, or other foreign matter that may cause disease, by the lungs, skin, and kidneys. But it is only good drinking water that has these cleansing properties; it must be quite clear and without odour, and must have no taste whatever. All water that contains any vegetable or animal particles is injurious to health. This can be best ascertained by keeping water in a glass or a bottle for several days. If it has a bad smell, or if a dark sediment has settled at the bottom of the vessel, the water is bad.\*

The artificial mineral or aerated waters that are now so much used are not to be recommended. The carbonic acid that they convey to the stomach passes into the blood, when they are taken continually, perhaps every day, and at length poisons the body with an excess of carbonic acid. People who drink such water every day for food or refreshment look pale and anæmic, and are thin-blooded and weak.

Besides, these aerated waters directly injure the stomach; their icy cold proves a hurtful stimulus to the mucous coat of the stomach, and has led to many a gastric catarrh that a man could not account for. Therefore drink only pure, clear spring-water, dear reader, when you are thirsty, and when you can get it. It is the most natural drink in the world. Yet there are people who have departed so far from a natural mode of life, that their stomach cannot stand fresh water any longer. They should take water in small quantities

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\* For further information see the chapter on "Water."



at first, and gradually increase the quantity until they can take three or four glasses a day without inconvenience to the stomach.

Soft water is far preferable to hard water. The first is much better for removing the impurities which have formed in the body — in the blood and in the humours; whereas hard water, which contains a good deal of earthy ingredients, increases them, and gives you a rough, dry skin, besides causing many diseases.

I now come to those excellent means of shortening one's life — wine, beer, and spirits — which you, dear reader, have hitherto regarded as unrivalled sources of strength and nourishment. Probably you have put more faith in the first two than in the third — I hope so, at all events. All three, however, contain what we call alcohol, and by means of this have an intoxicating effect on the human organism — stimulating at first, but paralyzing in the end.

This is not the place to go into the many ways of adulterating wine, beer, and spirits, and the many kinds of stimulants and liquors which injure the health instead of improving it, as they are thought to do; I can only assure you, dear reader, that all alcoholic drinks do not increase, but positively lessen, one's strength. Although the consumption of these fine spirituous liquors, these excellent gifts of God, is generally commended, and although our social instinct and the conditions of modern life impel us, in a certain sense, to indulge in them, I cannot and dare not recommend them with a clear conscience. They are stimulants: they excite, and will cause a reaction. They shorten a man's life, even when, taken in moderation, they seem to brighten him and cheer him up. But I cannot altogether forbid you them, because in that case you would have to live almost as a hermit; you would have to withdraw from the social circle of your beer-and wine-drinking friends, you could not join freely in any festivity, and you would have to renounce every social pleasure.\* That would not do at all, I admit; I only ask this of you — be moderate. Leave off drinking when it tastes best! Drink little wine, and let it be always, if possible, tempered with water, and not much beer. Do not try to show your physical powers by intemperance, and

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\* Unless you became a vegetarian, and joined a vegetarian society. In that case you could have conviviality without meat and spirits.

to prove your manliness, out of a false pride, by the excessive consumption of spirits. Be moderate, I beg of you.

Wine contains about 10 per cent., beer about 3 per cent., whisky and brandy about 40 to 60 per cent. of alcohol. And the smallest quantity of alcohol excites the bloodvessels and nerves when it is taken into the system.

"Wine rejoices the heart of man," says an old song, "but it does still more in the way of disturbing it," says Professor Hitzig, the director of an asylum. "Alcohol," says Dr. Dock, "is a subtle poison that runs through the entire organism almost in the twinkling of an eye, affects the action of the blood, nerves, and brain, causes inflammation and disturbance in the most diverse organs, and sometimes proves very injurious to the entire organism."

Alcohol acts very prejudicially on our nervous system, which it more or less stimulates; and the excitement is naturally followed by a reaction. Then a man tries to remove this by another dose of alcoholic liquor, and so the work goes on, until at length there is a total collapse of the organism. All heavy drinkers suffer from chronic gastric catarrh; in many it ends in cancer of the stomach. Fatty degeneration of other organs also sets in, and so forth. In the course of time heart-disease makes its appearance, and in the majority of cases the long story of suffering ends with a protracted dropsy. The condition of a notorious drinker is frightful: it is a continual change from excitement to relaxation, from a good to a bad humour: then there is a loss of memory, will, and energy: finally, moral degradation, excess of every kind, crime, and so on to the end of the chapter.

"Dipsomania," said Professor Hitzig, whom we mentioned above, "is a mental disease, and four-fifths of the murders that are committed may be traced to it." Alcohol has an extremely hurtful influence on the central organ of the body, and thus it is easy to explain the great number of cases of insanity which are due to spirit drinking. And the frightful ravages of this excessive indulgence in alcohol are extended to posterity; the children of drunkards are afflicted with idiotcy, epilepsy, insanity, scrofula, rickets, and consumption.

And what is the truth about this "strength" that spirits are supposed to give? The truth is that drunkards are exceptionally weak people; every disease hits them more heavily than it does temperate folk.

As to the part that beer plays in the healing of the insane,

a physician, Dr. C. Clay Shaw (who is a specialist in mental disease), has published some very important observations. He tells us that since they ceased to supply the patients with beer, in the asylum which he controls, nearly half of those who have been admitted (that is, 46·97 per cent.) have been cured. Ought not this fact to tell against the drinking of beer by sound people, who should make it their supreme concern in life to avoid disease?

And now what about the economical aspect of drinking spirits? What an amount of money could be saved by avoiding them? What an immense indirect gain it would be all round to give up stimulants of all kinds? How much is spent in the course of the year by many people on beer, wine, tea, coffee, tobacco, meat, etc., under the erroneous impression that they are purchasing strength or a transitory pleasure! A man soon gets into a merry humour — but are the consequences of it so agreeable? After the brief excitement and the momentary feeling of strength comes a condition of disgust, of reaction, of physical and moral prostration.

How much more money people would be able to spend on really wholesome and well-cooked food — good vegetables and luscious fruit — or on better dwellings, clothing, the education of their children, or their own improvement, if they would make up their minds to avoid spirits! Unfortunately, there are too many men of the kind that leave their wives and children to starve at home, whilst they go off to the public-house with their hard-earned wages to “fortify” themselves, as they imagine. What a chain of misery, care, and suffering hangs about this beer and spirit drinking, and what debasement and brutality it causes in man — the image of God!

The crime of giving spirits, even in a moderate quantity, to little, half-grown, or even older children, has always been bitterly punished.

Can there be a greater folly than that of trying to strengthen little children — especially during their teething — with wine or diluted spirits? The idea of strengthening with liquors that contain more than 10 per cent. of alcohol! Spirits are bad enough even for older children, and may lead to those fearful habits that have ruined many a life that was full of hope and promise. The best drinks for children are milk and water. And let them have plenty of fruit, which contains a good deal of water and is excellent for quenching thirst. All other drinks are harmful.



Whether it is correct to say that "wine is the milk of age" I leave to the judgment of the reader who has attentively followed my observations. But to give alcoholic drink — say a glass of stout — to women with child and wet nurses is folly. The poor, pitiful sucklings must pay with restless sleep, excitement, and cramp for this precious "strengthenener" — supposed to be taken for the purpose of improving and increasing the milk of their nurses. The alcohol passes into the blood, and from that into the milk. A physician once proved this to demonstration in the case of a seriously ailing child, whose nurse was addicted to drink. Have a care, then, you mothers, when you suckle your babes. Eat whole-meal bread, fruit, vegetables, and food made from milk, flour, and eggs, but take no alcoholic drink, if you wish to have plenty of milk of the best quality for your dear offspring.

Of late years it has become the fashion for women to put their faith in stout as a bracing and strengthening drink, which contains four or five per cent. of alcohol, and an immense percentage of water. If these weakly women, instead of making themselves worse by drinking this heavy beverage, which thickens the humours and causes costiveness, would take more exercise in the fresh air, in proportion to their bodily strength, see to the cleanliness of their skin, eat wholesome, well-cooked, unstimulating food, and set about a natural course of treatment suited to their chief complaint, they would soon be well in body and soul. But they prefer to poison their blood with their heavy, alcoholic stout. There is nothing that people reflect less upon than the question of what is good for the body and what is injurious. Are they capable of thinking independently on the matter at all? Unfortunately they are not. The vast majority of people patiently resign themselves to the leading-strings of our precious professional doctors; they go on drinking, and smoking, and running into excesses of all kinds; and if an illness overtakes them, they say it is an affliction from God, and send off for the doctor.

"Alcohol," says Dr. T. L. Nichols, "is not a necessary of life, in any form or any quantity. Light wines and beers may be less hurtful, but it is impossible to discover any use in them. Whatever nourishment they contain is destroyed by fermentation, so that people only take a stimulating, intoxicating, disease-causing liquor. Millions, many millions of men, have never tasted wine, beer, or spirits, and no one can say that they are any the worse for it."

Even coffee, tea, cocoa, and chocolate are rather stimulating than nourishing drinks, though they contain a certain amount of nourishment. Caffeine, the principal ingredient of coffee, is a narcotic — in plain English, a poison. Tea contains theine, a substance that has the same properties as the caffeine in coffee. Both poisons act as stimulants on the brain and the nervous system, and accelerate the action of the heart. Cocoa contains cacaine.

According to Dr. Joseph Wiel (in his "Dietetic Cookery-book," p. 125), the shelled cocoa-bean is composed of the following chemical ingredients:

|                       |       |
|-----------------------|-------|
| Theobromine (cacaine) | 2     |
| Gluten                | 20    |
| Fat (cocoa butter)    | 51    |
| Starch, dextrin       | 22    |
| Water                 | 5     |
|                       | <hr/> |
|                       | 100   |

"It is clear from this composition," says Dr. Wiel, "that chocolate has a high nutritive value. It is usually classed with tea and coffee, although it is by no means so exciting as they."

Coffee and tea are drunk in every part of the globe where civilization has penetrated. The difference between the effects of the two is due to their respective volatile aromatic ingredients. Coffee accelerates and tea retards the circulation of the blood. But both, as we have often said, stimulate the brain and nerves.

Coffee is a strong stimulant for the blood-vessels, and therefore it increases the flow of blood to the brain. As a result the brain is stimulated to greater activity, and the imagination is enlivened. Hence coffee helps to sustain light conversation.

Tea, on the other hand, has more effect than coffee on the nervous system, and it "increases the power of combining the impressions received" (Dr. Munde). Hence tea contributes more to conversation of a more serious kind, in stimulating the intuition and judgment, and impelling to reflection.

"And excessive indulgence in coffee leads to sleeplessness and a half-delirious excitement, in which ideas, thoughts, and desires chase each other rapidly through the brain. There arises a feeling of restlessness and heat, of fear and giddiness,

a trembling of the limbs, an impulse to rush out into the open air; and fresh air is generally the best means for curing this condition, which would worry a man to death if it lasted. The volatile oil in tea causes giddiness in the head, which first takes the form of vertigo, and then of stupor, in cases of tea-intoxication. These injurious effects are produced by green tea, which contains much more volatile oil than the black, and of a much greater strength" (Moleschott).

Besides caffeine, gluten, albumen, and legumin\* — all important forms of nourishment — coffee contains a substance called tannin. Tea, on the other hand, is richer in albumen, tannin, and theine. It is, therefore, more nourishing than coffee, and, on account of its greater richness in theine (= caffeine), its more delicate aroma and more pleasant taste, it proves more stimulating, or, as its numerous devotees say, it is more "cheering." Tea is the more aristocratic brother of coffee.

After all the facts that I have now put before you, dear reader, with regard to the effects of coffee and tea, you cannot possibly expect me to recommend them to you for daily consumption. I can only advise you to give them up altogether, or at least to take them as little as possible. The rules of a natural way of living forbid both drinks, because they are conspicuous stimulants, and you have no need of them to sustain your life or keep you in good health. You may tell me that you only take weak tea and coffee, that you mix chicory with your coffee, and that up to the present they do not seem to have done you any harm. It does not matter. I have a firm basis of fact when I tell you that these drinks injure you even when you take them in moderation, and even though you do not directly feel any harmful effects. You are not really healthy, dear reader, whatever you may say; there is always something wrong; you have a headache from time to time, or your digestion is out of order; you suffer a good deal from cold feet and hands, and complain of palpitation of the heart, shortness of breath, heaviness in the limbs, and other troubles. Yet you persist in saying that "otherwise you are sound!" You may confidently put down a great part of your troubles to drinking coffee. And if you take chicory in it, so much the worse; the substitute has other evil effects of its own. Take instead of it Father Kneipp's

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\* The chief ingredient of leguminous fruits, a kind of vegetable gelatin.



malt coffee, a corn and barley coffee, or a homœopathic health-coffee; or, what is still better, replace it entirely by a nourishing plate of oatmeal porridge, or of wholemeal or potato soup. All of these are more wholesome and cheaper than coffee.

"No one should be surprised," says Dr. Munde, "that mankind is deteriorating more and more. Since milk, potato, and meal soups have given way to tea, coffee, and chocolate: since even the working classes have begun to indulge more in stimulating than in nourishing food, and to spend on tobacco, spirits, and beer the money that ought to go in the purchase of sound nourishment: since people began to talk so much about education, and do it so badly in practice: the strength and beauty of the human race have degenerated more and more. Heaven only knows how it will all end, if these new artificial wants keep on suppressing natural cravings. The natural health-system is too weak to stem the tide of this ever-nearing devastation; it can only console itself with the consciousness than it has done its best in helping to avert it. The medical profession, as a rule, swims with the stream. It drinks tea, coffee, chocolate, wine, beer, and whiskey; it smokes, and it even writes books to prove that all these artificial wants are a blessing to humanity."

Children should never be given tea or coffee under any circumstances. Nervous ailments are now quite the order of the day amongst children. By no means the least important cause of them is the taking of tea, coffee, and meat. People with weak nerves, and those who suffer from any kind of heart-disease and from certain disorders of the stomach, etc., should never touch coffee.

#### 4. When, how often, and how, should We Eat and Drink?

The researches of physiologists have proved that there is a certain regularity in the action of the stomach, in the sense that the gastric juice is only secreted at certain times, and that digestion goes on very badly at other intermediate times. This is obviously connected with the custom of taking meals at fixed hours of the day. The habit has become a second nature, and now it makes us observe these meal-times regularly. The secretion of the gastric juice is really always

taking place in the stomach, but it is most active when food is present. Hence at the accustomed meal-times the gastric juice begins to form in greater quantities, and the feeling of hunger arises, in connection with the drawing together of the walls of the stomach. If no food is passed into the stomach at such a time, the gastric juice flows away into the

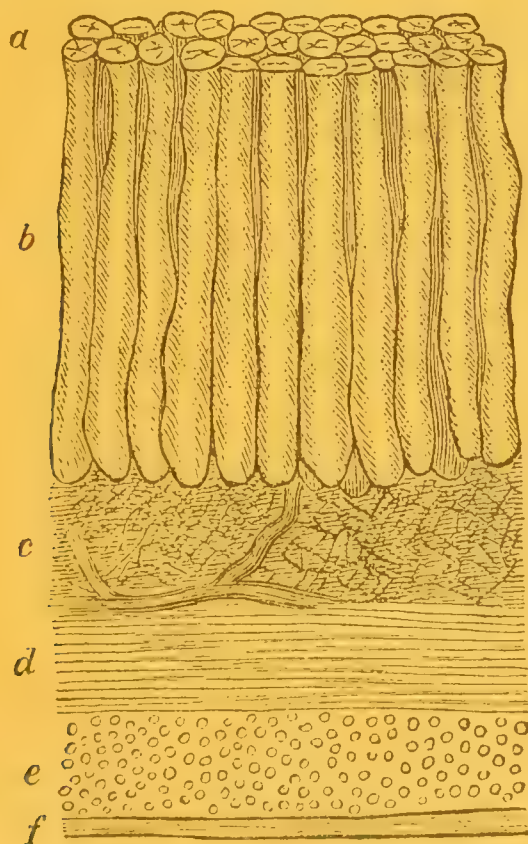


Fig. 7. Section of the stomach-wall (magnified 15 times).

a. Inner surface of the stomach, the mucous lining being removed. b. The glands or follicles which secrete the gastric juice. c, Connective tissue. d. Transverse muscles, and e. Long muscles of the wall of the stomach. f. External skin of the stomach.

intestines, and the feeling of hunger disappears. This is the familiar condition that we call being "past hunger." And if any one begins to eat after the feeling of hunger has gone — especially if he eats rapidly and eats more than usual, in order to make up for what he has missed — he soon perceives plenty of consequences, but not at all of an agreeable nature. Instead of the pleasant and comfortable sensation that usually

follows a meal when one is hungry, he has pains in the forehead, giddiness, nausea, ill-humour, pressure at the stomach, heartburn, and other troubles.

These symptoms may be avoided if a man begins his over-due meal with a thin soup, and takes it very slowly

The appetite then recommences, because in taking the soup a fresh and vigorous secretion of gastric juice has been caused. "*L'appetit vient en mangeant*," says a familiar French proverb — "Appetite comes by eating."

You now know, dear reader, what you have to take into account, and you will be careful in future to be more attentive to your meal-times in the interest of your health — apart from the fact that respect for your wife and children of itself requires such attention.

Healthy people, who have no great bodily exertion and are more occupied with mental work, will find the three meals per day quite enough.

The first — the breakfast — should be taken about 7 or 8 o'clock in the morning, and should consist only of light food (milk, malt coffee, fruit (fresh or cooked), wholemeal bread, and butter, or a dish of oatmeal porridge with wholemeal bread and fruit, etc.)

In any case it is best not to sit down to breakfast immediately after rising, but to take exercise, or do bodily work, in the fresh air for an hour or two, so that you may get really hungry, and your whole organism may show a distinct craving for nourishment.

The second meal may then be taken about midday, from 12 to 1. It may consist of soup with various ingredients (peas, beans, lentils, rice, barley, oats, wholemeal, and vegetables), vegetables, according to the season, potatoes (preferably in the skins), leguminous fruits, and dishes of flour, milk, and eggs; fruit, wholemeal bread, etc., and perhaps a little meat as a relish.

The third meal is best taken about 7 or 8 o'clock in the evening. It should be like breakfast in quality and quantity — that is, it should include only light foods.

Fig. 8.



Fig. 9.



Fig. 8. Simple tubular gland in the mucous membrane of the stomach.

Fig. 9. Compound peptic gland in the stomach.

1. Common duct.

2. Tubes with peptic cells.



People who have a good deal of bodily exertion, children who are still growing, and convalescents who have to make up a good deal of substance lost in the making of new parts,



Fig. 10. Blood vessels of the stomach (magnified 15 times).

The artery which conducts the blood from the heart to the stomach is embedded in the layer of connective tissue; it breaks up into branches, which pass into the network of the capillaries. The capillaries enfold the openings of the glands, then pass away from the side of the gland, and connect with a vein (not shown here) which conveys the blood back to the heart.

may add two supplementary meals — a second breakfast, about 10 in the morning, and a light meal about 4 in the afternoon. But care must be taken to allow an interval of

at least three hours between the chief and the secondary meals, so as not to disturb the digestion of the previous meal.\*

It is much the best for the stomach and for the whole body if only three meals are taken every day. The stomach needs a rest, like every other organ. Wealthy people, who often take a supper just before going to bed in addition to their evening dinner — making five meals per day — do not give that long-suffering organ much time for rest.

For people who suffer from certain disorders of the stomach even three meals per day are too much. It is best for them to take only two meals — one, perhaps, about 11 in the morning, and the other about 5 in the afternoon. Dr. Nichols urgently recommends 8 in the morning and 4 in the afternoon as meal-times for dyspeptics. The point is not without importance even for sound folk. In any case, it is not wholesome to take a heavy meal at mid-day in the brief interval of work.

Dr. Nichols says, in his "Dietetic Cure:" "An immense number of dyspeptic people — and all chronic invalids suffer from indigestion — could be cured if they would be content with one, or, at the most, two meals in 24 hours. The fact is that, acting on the advice of ignorant and unprincipled doctors, they eat every two hours — take all kinds of compounds — meat extract, beef-tea, jellies, fish, meat, poultry, etc., and fill up the intervals with drinking "nourishing" port wine, with a drop of spirits perhaps, besides the usual sedatives and strengtheners."

"It is marvellous how people live at all on such a diet. Human nature is wonderfully tough." "Allopathy," he goes on to say, "absolutely kills patients in thousands of cases, and it always more or less retards and hinders recovery."\*\*

**Never eat unless you are hungry!**

Make it a rule above all, dear reader, never to eat unless you are hungry, or to drink without being thirsty. Hunger is the best sauce. In order that you may be hungry at meal-time, always take care at the earlier meal to eat only just as much as you need in order to leave the stomach

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\* A small piece of wholemeal bread and some fruit is quite enough for this supplementary meal. It is merely a question of putting a little in the stomach.

\*\* Dr. Paul Niemeyer, the hygienic specialist, says: "The true art of healing commences where medicine leaves off."

empty again for at least two or three hours before the next meal.

Never drink unless you are thirsty!

If you only drink water you are not much tempted "to drink beyond your thirst." But I know very well, dear reader, that you do sometimes drink without being thirsty — for instance, spirits, tea, coffee, etc. So I beg of you to abandon this habit. If you are ill, or if you do not wish to become ill, do not take any more of those drinks before meals, my good friend. As I explained to you at the beginning of the chapter, the gastric juice collects in large quantities in the stomach at the customary meal-time. Now, if you take a glass of beer or a drop of spirits a little before the time for your dinner, you weaken the gastric juice to such an extent that it loses the solvent property it needs for the digestion of solid food. If you will only deny yourself your glass of beer for a day or two, you will find that your dinner will taste all the better, and you will feel much more comfortable after it.

For the same reason it is injurious to begin a meal with a great quantity of thin soup, because in that way the gastric juice is deprived of its power of concentration which is so necessary for digestion. That is why many families no longer take soup, or take very little soup, at dinner.

Drink very little at meals, and then only if you feel thirsty. "Do not take any liquors until digestion has proceeded so far that the contents of the stomach form a thick pulp. For the process of digestion implies, amongst other things, the liquefaction of the chyme." The nutritious substances need loosening before they are of any value, and the best thing to loosen their particles is water. How much of it you are to drink must be settled by your thirst. If you drink "beyond your thirst" during or shortly after a meal, not only is your stomach unduly distended, but your gastric juice is watered down so much that it can no longer exert its digestive properties.

Never take food which you know from previous experience will not agree with you. Experience is your best guide in such matters. Food which comes up again after you have tasted it is not good for you, and must be avoided in future.

It matters a good deal how much you eat at a meal. If you eat or drink too little you do not supply your



body with the requisite quantity of nourishment to maintain the constant interchange of matter. If you eat or drink too much you injure your stomach and your whole organism; you lessen your mental and bodily capacity when you overload your organism with digestive work. Never eat more, then, than is necessary to satisfy your hunger, and keep it off until the next meal time. Leave off eating when the food tastes best!\*

In particular, people with disordered stomachs should make it a rule never to continue eating until they are quite satisfied. Great quantities of food injure the stomach and the intestines. The stomach is reduced to a kind of paralytic condition when it is overloaded; its action is retarded, and in spite of the greater quantity of food, there is less gastric juice produced than usual. You need never regret that you have been very moderate for a meal or two. You can easily make good the defect of "too little," but you have to pay dearly for the defect of eating "too much." If, however, dear reader, you have contracted the habit of eating much, you must go to work gradually, but steadily, in reducing the quantity of your food. The best way is to help yourself from a dish once satisfactorily, and then take no more; and to rise from table as soon as you feel the first sign of satiety. As long as a man remains sitting at the table he is inclined to continue eating.

In eating you must satisfy your hunger, but not lose your appetite.

"What do you mean?" you ask. "Are not hunger and appetite the same thing?" No, my friend, they are two very different things.

Appetite is a stimulus of the palate — a desire for food and drink for the pleasure of taste. A healthy man always has an appetite, even when he is not hungry; but he declines to satisfy his appetite when he feels no hunger.

Hunger, on the other hand, is an irritating condition of the stomach, arising from the contraction of its walls or membranes. In many people this contraction (a kind of spasmodic movement) is only feeble, hence they have only a slight sensation of hunger. In others the contraction is strong, and so the sensation of hunger is correspondingly keen — they have what we call a "gnawing hunger."

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\* See the chapter "What Shall We Eat?" p. 9.

So it is our hunger, not our appetite, that must be appeased — mark that, dear reader. The appetite continues just the same, if you observe that important rule of leaving off eating when the food tastes best. If you do not follow that advice your appetite disappears after every meal; that is the best proof that you have eaten too much. Then you complain of loss of appetite. To cure it you have only to eat less at your next meal, and so on until it returns.

At the same time there are morbid conditions (in catarrh of the respiratory or of the digestive organs) in which a man may feel hunger but no appetite, and it cannot be recovered until the patient returns to his normal health. Such cases are, of course, exceptions to the rule.

In general a man needs every day solid and fluid nourishment to the extent of from a twentieth to a twenty-fifth part of the weight of his entire body. A large-bodied person therefore needs more nourishment than a small one, an adult more than a child. An industrious man generally feels more hunger than a lazy one; he who expends his strength in bodily or mental exertion has to eat more than the man who does not exert himself much, and who seems to lead a contemplative life. A sound man eats more than a bedridden invalid.\*

Be guided by that rule, dear reader, and regulate the quantity of your nourishment always according to the conditions of your life at the time.

Do not always take the same form of nourishment, but arrange for a certain variety in your food, so that your organism may be supplied with all the materials that it needs for its structure and its maintenance. Take as the foundation of your diet vegetables and white wholemeal bread; to these add cheese, eggs, butter, vegetable fat, and meat (but not much!) according to your circumstances and bodily needs. Use no condiments, or use them very little, with your food; to make it more tasty and nourishing you may use sugar

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\* Prof. Dr. Reklam writes: "When he has light and nourishing food a man does not need to eat so much — and, on the other hand, he must eat more when his food is less nutritive and more difficult to digest. The digestion of all kinds of food consists in the breaking up of it by the digestive fluids in the stomach and the intestines, thus preparing it for absorption into the blood. The more rapidly any aliment can be broken up by the stomach and the large intestine, it is so much the more 'digestible' — and the more an aliment contains of this resolvable matter (to be absorbed into the blood), it is so much the more 'nourishing.'"

and salt (though not much of the latter). In all these aliments you will find, by a judicious choice and combination, the proper proportion of nutritive material to replace what you have lost in the daily wear and tear of your bodily organs, and to permit the growth of your organism and the generation of the requisite quantity of heat.\*

Masticate your food slowly and thoroughly, especially your wholemeal bread and your meat — if you cannot yet bring yourself to abandon it altogether. Many digestive troubles are due to faults in the manner of eating: imperfect mastication and insalivation, and a too hasty swallowing of food, are faults that one meets very frequently. "What is well chewed is half digested," says an old saw. The stomach has not only a double task to perform when the food is not properly masticated, but the breaking up of the food by the gastric juice becomes much more difficult. The big, coarse fragments irritate the tender mucous membrane a good deal. Sometimes people who have lost teeth, and cannot very well masticate with the remainder, have had artificial teeth fitted, and so rid themselves of the digestive disorder which had been brought about by their toothless condition. The saliva is secreted in large quantities during mastication, and mixed with the food, and this is the first step in its gradual transformation into the substance of the human body. For instance, the starch in bread is changed by the saliva into sugar and dextrin. If the food is not well insalivated, it is not properly prepared for the stomach, and so becomes a burden to it. Hence it is that soups and broths and lightly-cooked food in general are often difficult to digest, because people generally swallow them down without any insalivation. You must, therefore, always masticate bread when you are taking liquid or pulpy foods. If you follow the better practice of only taking solid foods, thoroughly

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\* Dr. Joseph Wiel writes in his "Dietetic Cookery-book." "A good fire must be kept up in the kitchen of the body. Fat is good heating material, especially fat meat [!? Author]. In the winter one has naturally a better appetite and a desire for stronger [!? Author] nourishment, and for food that contains carbo-hydrates — that is, fat and other heat-producers. Many fatty meats are suitable in winter, and can be eaten much better than in summer. In warmer weather the appetite is less keen, and one feels more inclination for aliments of less nutritive value (fruit, vegetables)."

It is true that vegetables and fruit have less nutritive value than nitrogenous foods, but they are proportionately more refreshing, cooling, and purifying for the blood than meat and similar stimulating foods.



masticated and insalivated, you swallow them without inconvenience.

Let your food and drink be neither too hot nor too cold! That is an important dietetic law. Unfortunately, food and drink is almost universally served and consumed at a wrong temperature. It has been found by experience that digestion is easiest when the temperature of the food taken does not differ very much from that of the blood ( $100^{\circ}$  F.). When the temperature of the food is too high, it not only injures the mucous membrane of the stomach (the temperature of the stomach varies from about  $104^{\circ}$  to  $118^{\circ}$  F.), but also interferes with, if it does not entirely prevent, the expansion of the albuminates.

Hot soups, hot mulled wine, punch, grog, coffee, tea, chocolate, hot spiced ale, etc., injure the stomach just as much as iced water, wine, beer, etc. — especially when gulped down in large mouthfuls; it does not matter whether the body is heated or not. Catarrh of the stomach is caused in that way; even cramp and debility of the stomach are not uncommon after taking such things. Yet it is not unusual to take a glass of mulled wine, a cup of hot coffee, or a hot soup, as a "remedy" for an ailment! There is no branch of knowledge in which homo sapiens\* is less at home than "medical science."

Then, too, a sudden change from hot to cold dainties injures the teeth, and the mucous lining of the mouth, the œsophagus, and the stomach.

Do not, then, take a drink of cold water or beer immediately after your hot soup. Also avoid ices, which are so much taken for cooling in warm weather.

Drinking-water should not be under  $50^{\circ}$ — $54^{\circ}$  F., beer not less than  $52^{\circ}$  F., the better kinds of white wine not less than  $50^{\circ}$  F., cheaper kinds not less than  $54^{\circ}$  F., and red wine not less than  $59^{\circ}$  F., when they are taken.

Coffee and tea should not be above  $95^{\circ}$  F.; soups may be taken at  $106^{\circ}$ — $113^{\circ}$  F.\*\*

Be careful not to eat immediately after any violent bodily or mental exertion. You might injure digestion very

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\* Wise man.

\*\* It is for the sake of completeness that I have given the temperatures of alcoholic and narcotic drinks, besides that of water. I must, however, not be misunderstood, and taken to recommend these stimulants indirectly. They are mere stimulants, and the consumption of them is always unnatural.

much by doing so. Strong emotions, anxiety, excitement, care, and fear, interfere with the secretion of the gastric juice, and it is best to abstain altogether from food after such experiences.

After eating you must be equally careful to avoid any violent bodily exercise, or any kind of mental work. The best thing to do is to take a short sleep after your dinner. "A healthy man," says Dr. Wiel, "instinctively closes his eyes after his dinner; and you will find that cattle do the same if you look." But this nap should not last more than an hour, or else you will feel out of sorts and tired, instead of being refreshed and lively. On the other hand, an after-dinner nap is not always good for people of weak digestion. They always feel out of sorts if they doze after dinner. People of this class should apply the old saying, "After breakfast walk a mile," to dinner also; they will find it helpful to take a short nap before the evening meal.

It is very important not to go to bed immediately after supper. Two or three hours should be left between supper and bed. The heavier the supper the longer must you wait before retiring.

Do not press or force anybody to eat. There is no kind of food that is equally suitable for, and acceptable to everybody; even in the same family there may be the greatest diversity of taste, according to age, sex, and temperament. You cannot put a man's fodder before him as you do a cow's. When a number of people are eating together the circumstance that the majority of the company like a certain dish does not imply that the same dish will be agreeable to the minority. The people who decline the dish may be unwell, or may have had enough, or they may have a natural dislike of that particular food. In all three cases it would injure them to take the food in question.

Professor Gustav Jäger, M.D., of Stuttgart, a distinguished physiologist, expresses his opinion on this point in a peculiarly striking passage in his "My System."

"The foolish custom of pressing people to eat," he says, "is especially in vogue with regard to guests and children – more particularly the latter, who have often enough to sacrifice their health to the silly prejudice of their parents that the child must eat whatever comes to the table; that would happen much more frequently if the child's stomach did not revolt, in most of the cases where this law of nature

has been transgressed, and cast out the superfluous food by vomiting."

"The following practice should be observed with regard to children; they must never be compelled to fill their stomachs or satisfy their hunger with food that disagrees with them, but an effort should be made to accustom them to a dish. This does not mean that they are to eat a great quantity of it; a taste is quite enough for the purpose."

"Hence the saying that 'The child must eat whatever comes to the table' must be changed into, 'The child must taste whatever comes to the table, but may satisfy its hunger with what it likes best.'"

"Mothers will tell me," says Professor Jäger again, "that it is practically impossible to take account of the individual taste of each person at table in a large family; you cannot cook for each person separately. That I emphatically deny. It is not very much trouble for a housekeeper to put on the table, besides the cooked foods, a quantity of bread, butter, fruit, eggs, and milk — or at least to have them at hand. Bread [wholemeal bread — Author] and fruit are foods which can not only support a man very well, but they are as a rule very much liked by children; and how much trouble is it for a woman to give a child a cup of milk and a piece of bread when it cannot take the cooked food?"

"And the practice of giving these foods that need no cooking is in the best interest of the mother's own health — that is, in cases where she does the cooking herself. Every observant housewife knows the fact that the continual breathing of the vapours of the food in the kitchen takes away her own appetite for the food she has prepared.

"This happens, in fact, even if she does not cook herself but merely watches the cooking. The food tastes a good deal better, when she takes it at an hotel, or as a guest at a friend's house. Every experienced doctor knows how often housewives, especially of the middle class, complain of digestive ailments; in many cases the sole cause of the trouble is that the woman has lost her appetite in the fumes of the kitchen, and she is not clever enough to get out of it by providing as meals food which she has not had the trouble of cooking."

Thus far Professor Jäger.

I have now, dear reader, claimed your attention and patience long enough in my various chapters on "the



nourishment of the human body." But the importance of the subject imperatively demanded that I should treat the question of food exhaustively, and give you full instructions as to "How you must eat in order to continue in good health." The question of diet is as important in the case of individuals as the social feeding-problem is for nations. The more complicated that question becomes in the modern civilized community, so much the more does a man need, in order to solve it correctly, to study the laws of "metabolism"\* — that is, he must know what his organism needs in its construction, and how to replace properly all that it loses in its daily ebb and flow of matter.

Diet is the key to the situation: it is the chief factor in a natural life and in natural healing.

## 5. The Use of Tobacco.

Tobacco, like coffee and tea, belongs to the class of narcotics — that is, stupefying substances. It is one of the most important stimulants and luxuries of civilized and uncivilized man. Everybody knows the strong poison that is contained in it — nicotine. A single drop of nicotine, falling on the floor of a room, is enough to vitiate the entire atmosphere of the room. "In addition to this, tobacco smoke contains prussic acid, sulphuretted hydrogen, oxide of carbon, carbonic acid, etc. It has been proved that in certain circumstances these poisons pass into the blood by means of the air" (Dr. Munde). Nevertheless the male sex, especially, is so addicted to smoking nowadays that one rarely meets a non-smoker. That is so much to the detriment of human nature, because tobacco leads to a number of troubles, and causes quite a host of diseases. Loss of appetite, gastric catarrh, dyspepsia, vertigo, headache, emaciation, debility of all kinds of organs, and catarrh of the throat and larynx, are some of the consequences of nicotine poisoning from smoking.

It is well known that smoking is particularly hurtful to growing youths: it interferes with their growth. Parents and

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\* See the chapter on "Metabolism."

teachers know this perfectly well, and cannot be too strenuous in opposing their influence to the spread of the pernicious habit. Certainly, it would be best if adults would set the youngsters a good example in this respect. Example is a thousand times better than precept. But there is just the difficulty. How can a father or a teacher forbid his son or pupil the use of tobacco, when he is a heavy smoker himself?\*

It is a delightful paradox to forbid another, on the ground of health, what you cannot refrain from doing yourself. "Evil communications corrupt good manners," says the proverb, and again, "Like father, like son." What feelings the youth has over his first cigar or pipe: how often does smoking bring on nausea, vomiting, vertigo, spots in the eyes, etc. And yet — yet they go on smoking.

Dr. Munde says very truly, in his work on "Hydrotherapeutics": "A man puts up with a good deal in his effort to become the slave of a habit which poisons the air that is indispensable for himself and others, and that he will never be able to shake off once he has acquired it."

It is just the same as with the taking of morphia. The fearful abuse of morphia or opium arises from the continued habit of "soothing" again with a poison the nerves we have strained by all kinds of exertion and over-exertion. The soother is really far more dangerous than the ailment it is applied for, and, if the habit be not broken off in time, it will ruin the entire organism, and eventually bring on a premature death. The poisonous action of nicotine in smoking does not indeed lead directly to fatal consequences, but it sensibly diminishes one's liking and capacity for work and mental power and vital energy. There are those who say that they can think and work all the better when they are smoking. They confound the stimulation which nicotine produces with a misleading feeling of strength; they are really drawing on their capital of vital force, instead of its interest. Alcohol, caffeine, and theine have much the same stimulating action as nicotine.

"If smoking destroys the appetite," says Dr. Wiel, "and causes a greater secretion of the saliva, which is then expectorated, it must be at once given up. Saliva serves for digesting a whole class of foods (starch-foods), hence it is injurious to waste it. Moreover, if the smoke is swallowed

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\* A remarkable and important pedagogical problem!

it may have an evil effect on the mucous membrane of the stomach. Then, too, poisonous symptoms follow in some cases. The man, for instance, who sucks his cigar like a coster on a holiday is bound to swallow a certain amount of nicotine."

Tobacco is not a food, but a poison; I repeat it once more, dear reader, and you are wise if you neither smoke, nor chew, nor take snuff. It goes through your whole body, poisons every nerve, and is particularly injurious to the sexual organs. If you take snuff or chew, you do not, of course, inconvenience other folk, but you injure your own health just as much as by smoking. A man who chews tobacco — the habit is happily now confined within very narrow limits in England — takes nicotine directly into his stomach: the man who takes snuff — another habit that has almost died out with us — applies a constant harmful stimulant to the mucous lining of the nose, and in the long run does serious harm to the nerves of the eyes and the head.

In countries where both men and women smoke the population tends to decrease. Women who are employed in cigar-factories rarely have children.

When I spent a few years in the State of La Plata in South America, I had an opportunity of observing myself the injurious effect on their offspring of women smoking. In Paraguay, for instance, a non-smoking woman is rarer than a non-smoking man. Tobacco is a luxury that the Creoles, like the uncivilized Indians of the Gran Chaco, make much of from their earliest years, and come to find indispensable. A cigar of rather a crude shape is always offered to a visitor as soon as he enters, with the words: "Un cigarro de Paraguay le gusta?" (Would you like a Paraguay cigar?) To refuse the cigar would give great offence to the native host. And then in that country, especially in Paraguay, not only the native but the visitor also is compelled to smoke continually in order to protect himself from the mosquitoes. Partly owing to this continual smoking of both sexes, especially of the women, the population of Paraguay has so much diminished, that the government has been greatly concerned about it for some years, and is endeavouring to increase the figure of the population once more by encouraging immigration and the founding of European colonies.

It would be carrying coals to Newcastle to talk about



the economic aspect of smoking. Only one point — £ 13,000,000 are spent annually on tobacco in this country. What could not be done with this immense sum? But, stay — there is one consolation, if it be a small one! Of all this immense expenditure on tobacco something remains — the ash, which is good for killing the plant-louse. These and other amiable little creatures are killed by tobacco-juice.

## 6. Fresh Air.

In every quarter of the globe we find ourselves surrounded by air. From the beginning to the end of our life, from our first day to our last, we breathe the atmosphere. We cannot live without it. Food and drink we take only a few times per day, but we take in the air about 15—25 times a minute, on an average about 1200 times an hour. Pure and good air is the supreme and most important condition of life that our organism needs in health or in disease. Dr. Tanner and other famous fasters have proved that a man can live without food for weeks together, he can do without any drink for hours and even days, but he cannot do without air, even for a few minutes, without endangering his life.

We men live in the sea of air that surrounds us like fishes in the ocean. Man is neither more nor less than an air-animal. The mouth, the nose, and the surface of the skin, are the external organs of our body, through which the air enters and is expelled. In the interior of the body it is the function of the lungs to purify the blood by means of the air we have taken in. As is well known, the blood circulates through the whole body, conveying fresh nourishment to each organ, and, as it were, washing down the used-up material through the heart into the lungs. It is here that the process of purifying the blood takes place — the dark, almost purple, blood being pressed through the filters of the lungs with the assistance of the air we have breathed, and issuing from them again, pure and bright-coloured, to find its way back into the heart. Then the heart, by means of its pump-like action, drives it through a system of large and small canals, which we call arteries, to the most distant parts of the body. Thence it returns, laden with used-up material, to the heart last, and passes on to the lungs again, to be again purified by contact with the entering air. And so

it goes on repeating the same circulation, which only ceases with death.

The blood is formed from the food a man has digested, and, where the physiological process runs its normal course in the human body, the used-up material of the blood is regularly replaced. The quality of a man's blood will be like the quality of his food. Pure food, free from injurious elements, makes pure blood: impure food makes impure blood.

An eminent hygienist once compared the heart, with its extensive, ingenious network of arteries, to a great irrigating system, pointing out, at the same time, that it had the advantage of not only conveying the nutritive stream to all parts, but also renewing the used-up and therefore injurious substances in its purifying works, and then distributing them once more from its pumping station.

In this work of purification an important part is assigned to the atmosphere. It should, therefore, always be of the purest and finest quality. Hence, the breathing of good air, free from all adulteration, is as necessary for a man as well-chosen, nourishing food. "Unfortunately," says Dr. Reclam, "good air is dearer and more difficult to get in large towns than the most expensive food and drink."

"Air," says a distinguished teacher, Professor Ranke, M.D., "is the bread of the lungs; the only difference is that it is breathed instead of being swallowed. No one would care to eat dirty bread; but it is much the same if he remains in an impure atmosphere and breathes it: he gradually poisons himself. In proportion as we use the air in breathing we deprive it of its healthy quality, and we pollute it with gaseous excretions which are just the same as the excretions of the bowels and kidneys. Would any one like to eat a second time what he has taken once? By no means! Yet it is much the same when a man breathes air that he has already breathed, without renewing it. The obstinacy of the general public in its objection to ventilation is only understood when we remember how many doctors in our day, who ought to have correct information on the matter, show that they have entirely false views about it. And what shall we say of the older practice that could not distinguish between fresh air and draughts? The general public's dread of fresh air has been inspired by its medical men!"

When we turn to chemistry, which is constantly of

service in our modern method of healing, we learn that the atmospheric air that surrounds us consists of 79 parts of nitrogen and 21 of oxygen, with a very small quantity of carbonic acid.

But the union of the nitrogen and oxygen is not what we call a "chemical combination;" it is a kind of loose mixture, such as is made by mixing oil and water together.

And besides the slight percentage of carbonic acid, there is a very small quantity of moisture in the atmosphere, to which we must add ammonia and dust. The proportion of moisture varies continually, according to the condition of the weather. Aqueous vapour arises, not only from the exhalations of men, animals, and plants, but also from evaporation at the surface of the earth, the waters, rivers, and seas. At a low level and in valleys the atmosphere contains more moisture than at a high level and on the mountains. Hence it is that invalids are recommended to seek an elevated locality; in the moister atmosphere at a low level people emit less vapour from their bodies, and so assimilate less nourishment. In rainy weather they feel heavier and less disposed for work than in dry weather, because they exhale less in a moist atmosphere.

Ammonia is found only in extremely small proportions in pure atmospheric air. As a rule ammoniac vapours are found in the dirty, uncleansed streets of large towns, in and about closets, and, in the country, about the dung-hills, etc. The good peasant has a great respect for dung on account of its agricultural value, and so he keeps it as near to his house as he can. It does not trouble him whether or no the well that supplies himself, his family, and his cattle, with drinking water is also in the vicinity of the dung-hill. What injury such a circumstance may cause to the health of his family he has no suspicion. It is, unfortunately, still too little known what an immense number of children fall ill and die in the country every year from the ammoniac fumes of these heaps of manure. And they who dwell in the more densely populated districts of our large towns often have an experience as unfortunate as that of the peasant.

Nitrogen has no appreciable effect on our body; it is taken in with the breath and expired again without producing any change in, or doing any harm to, the life of the blood. Oxygen, on the other hand, is an indispensable condition of



life: we should soon die if we were placed in an atmosphere that consisted only of nitrogen gas, without any oxygen. The oxygen that we take in passes from the lungs into the blood, combining, at first, with the "corpuscles" that are in the blood, and thus uniting with the carbon which we have derived from our food.\* The oxygen and carbon then unite, with a certain development of heat, to form carbonic acid — a gaseous substance which passes out of the body again when we breathe.

The generation of heat in our body takes place, on the whole, as it does in the processes of combustion we are familiar with — for instance, in the familiar methods of heating and lighting. When a candle or lamp is burned, for example, the oxygen of the atmosphere combines with the carbon in the tallow or wax or petroleum, and generates a quantity of heat — and of carbonic acid.

However, carbonic acid is sheer poison for our respiratory organs, paralyzing the action of the heart and retarding the circulation of the blood. Yet we breathe it, not only when we are burning wood, coal, oil, gas, etc., but when we are merely in the presence of other persons or of animals in our own house, since they are continually giving out carbonic acid gas in their breathing in virtue of the physiological process we have described.

Hence we men are poisoning each other almost continually in our dwellings, offices, school-rooms, workshops, theatres, music-halls, public-houses, etc., and one cannot be too urgent in insisting on admitting as much fresh air as possible into these "human stalls" by a reasonable amount of ventilation.

By fresh air we do not simply mean air that is not saturated with fumes and exhalations of every sort (from human bodies, gas-flames, lamps, candles, soot, dust, etc., or from closets, manure, dirty water, chemical substances, marshes, etc.). Pure air should be neither seen nor smelled. The air that is shut up in living and sleeping rooms is nearly as bad and injurious. Hence the windows — all of them — should be opened as much and as often as possible, to let in the fresh air.

Prof. Reclam, M.D., writes as follows with regard to the ventilation of living rooms:

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\* This carbon comes from our starchy foods, and from fats, sugar, etc., also from alcoholic liquors.

"Many people imagine that, if they leave the window of a room open a little at the top or bottom for an hour in the morning, the room is aired. But it is just as if you were to pour a teaspoonful of pure water into a glass of muddy water: that would not make the water wholesome. One can easily see the quality of water, because it is visible. But the atmosphere as a rule is invisible, and the noses of adults and children have not been trained to detect good or bad air, hence most people either do not notice foul air at all, or they thoughtlessly put up with it as a necessary evil. The man who wants to keep his assimilation good, and to be healthy and vigorous, must take care to have good fresh air in his house, must go out into the open — especially into the woods — as much as he can, in order to brace himself up with the good air, and must ventilate his rooms in such a way that he cannot smell the air either in the sitting or bed-room when he returns from his walk."

After these remarks of a distinguished professor and hygienist, I trust, dear reader, that you will resolve to ventilate your rooms much more thoroughly in future. It is not enough, remember, to open one window or a door for a short time: you must always open two windows in different parts of the room, or, if there is only one window, you must open it and the door opposite to it, if you want to have a rational and healthy ventilation.

**Good air is an important element in a natural way of living and healing.**

In another part of this book, dear reader, I shall have a good deal more to say about good and bad air, their effect on the healthy and the diseased body, ventilation, and so on. But as I dwelt rather at length — entirely in your interest, dear reader — in the earlier chapters of the book on the quality and quantity of your food, I shall have to restrict the limits of the present chapter. In this I am only following out my plan of giving you a general acquaintance with the natural ways of healing and the principles of a natural manner of life.

I will only repeat, then, for the present, that good, pure air is one of the chief necessities for the formation of good blood; and on the quality of our blood depends the health of each and every one of our bodily organs, and, in the long run, of our mental and emotional life.

Although my space is limited, I must quote a passage

from an excellent paper, entitled "About Air," which was written by the distinguished hygienic author, Philo vom Walde (E. Reinelt), a courageous and invincible defender of natural healing.

"Air," he says, "is the bread of the lungs. And as everybody takes care to eat only pure, unadulterated, harmless, wholesome, 'stomach-bread,' he ought to do the same with regard to this 'lung-bread.' Unfortunately, there are thousands who never give it a thought. A man will die in bad air, just as the fish is killed in water that is polluted with chemical and organic refuse. The nose is the sentinel of the lungs; you must not breathe where there is a stench. Unfortunately, so many people have lost their keen natural sense of smell by the use of snuff, or have at least made it so dull that it shows an astonishing tolerance of all kinds of smells. Then there are many who try to 'improve' bad air by perfumes (pastilles, eau de Cologne, etc.), or tobacco smoke. Every thoughtful man must ask himself what has become of their reason. Only the life-giving air, oxygen, serves for the purposes of life; when it is not present in sufficient quantities, or when it is poisoned by stench, none of these deceptive substances are of any value, but they rather do harm in perhaps inducing us to remain longer in the room than we otherwise would do. Thus the nose, the sentinel of the health and the lungs, is put to sleep and disarmed, just as murderers do with the watch-dog when they want to break into the castle treacherously. The blood is the sustainer of life, and it is poisoned by bad air."

"If anyone were to analyse the air of our public-houses, schools, living and bed rooms, he would, in a thousand cases, find a shocking result. These rooms are often no more than the sewers of the air. Not only are they wanting in oxygen, which is the only element that serves for breathing, but they contain 1—10 per cent of carbonic acid — besides a quantity of nitrogen and odoriferous matter. What an amount of nicotine, for instance, there must be in the air of our public-houses, when you can hardly see your hand before you, and you can "almost cut the air with a knife." That tobacco injures our organism is clear from the fact that smoking has to be learned, and the first lesson generally has a doleful result, as uncorrupted nature vomits out the nicotine poison. A man can accustom himself to anything — but we do not go so far as to say it agrees with him. All the results



which are claimed for smoking are a delusion and a snare: a day is sure to come when nature — which is as long-suffering and patient, but also as just, as God Himself — exacts a terrible penalty. It is all very well to be shocked about ‘opium-dens’ — our public-houses are ‘nicotine-dens,’ and that is just as bad. Where can a man live to day without being ‘smoked’? In the hotel and in the streets, even on the tops of the mountains, you have the smoke blown in your face. And even in a so-called ‘non-smoking’ compartment you can rarely get away from it. Tell me, ye stars above, when will it all end? And a passing raven croaks down at me: ‘Thou fool.’”

“What should we say if anyone wanted us to eat other people’s leavings! But do we not take a hundred times a day the ‘lung-food’ cast out by other people, the air that has been poisoned by their excretions? How often have we to breathe over and over again the air that has been breathed by our fellows in closed rooms. It is a sad, but an undeniable fact, yet it makes little impression on the majority of people. Such air-sewers are the sources and the nurseries of all kinds of diseases — diphtheria, scarlet fever, cholera, etc. As long as people do not see this, carbolic acid and other disinfectants are useless — pure, fresh air is the best disinfectant and the best guarantee of health.”

“No one would think of drinking liquid dish-water, but an air that is quite as bad is taken with pleasure. Every Englishman likes a good glass of beer. But where you find the best beer you have the worst air — that is to say, those public-houses are so much frequented, that the best ventilation in the world will not get rid of the effluvia (especially in winter) and ensure a sufficient supply of oxygen.”

“How the streets seem to smell when we return to the town after a walk in the open country! Yet when we go out into them after a few hours in the public-house how heavenly they seem in spite of all their effluvia; that is a proof of the horrible character of the air in the public-house. Yet we have let ourselves be stupefied and deadened by it, until at length we did not notice its hurtfulness any longer. But as soon as we set our foot in the street the paralyzed lung awakes; we cannot help but take a few deep breaths that seem almost ‘to come from the feet’ — so thoroughly is the lung pumped out. But we still have in our hair and our clothes those ‘public-house bacilli’ and ‘tobacco-microbes.’

And so the health comes to suffer and life is shortened. When troubles of the stomach and the nerves arise, or apoplexy comes on, people are astonished. Why, is not that the natural and inevitable consequence? Sins against health are followed by appropriate punishment, for even in human nature the principle of truth and justice reigns supreme. Then there is regret and misery. 'A man shall be punished in the member that has sinned.' 'Hours of sin demand years of atonement.' So say the proverbs that express the experience of the people for a thousand years and more. As long as a man is healthy you will preach to deaf ears: in time of peace no one cares to be reminded of war. You get only a shrug of the shoulders, a sneer, or a joke for your pains. But 'how high have I seen many a man fly who now walks on crutches'. The be-all and end-ail of most men nowadays seems to be the public-house. They spend their Saturdays and as much of the Sunday as they can in its fœtid atmosphere. They have to 'amuse' themselves. What frightful ravages does not this demon of alcohol make in the whole field of modern life. 'Spirit of wine,' says Shakespeare, 'hast thou no other name, thou shalt be called devil.'"

"In the better parts of the towns the practice of opening the windows is happily gaining ground, but the poor and the country folk have much to learn in that respect. In my many travels I have sometimes found in mountain-villages that the only chance a room had of ventilation was when the window was broken. If the peasantry did not spend the whole day in the open air it could never survive its fearful habits of life. Here is a chance for studying the effects of fresh air! No one can render greater service to the community on the score of health than the teacher. Unfortunately, this is still too little realized. How often did I read in my lesson book, when I was a boy, under the heading of 'air,' the sentence: 'There is plenty of that which everybody needs.' I did not understand it, and nobody explained it to us."

"The struggle for health is a struggle against human passion — a task, therefore, for which not every man has the strength and the courage. But it must be fought. And even if the hygienist be crucified and the apostle of nature outlawed — no one who feels the call should hide his talent in the ground. No profession, and no man has the

exclusive privilege of working for the bodily or spiritual good of his fellows. Just as the blessing of Christianity was conveyed to the world by 'uneducated' men, so it happens with the true art of healing. But let us also be decked with modesty. Let no one of us see a 'messias' in himself, but only a 'vox clamantis in deserto.' Many generations will pass away, thousands of combatants for the better way will die on the field, before the battle is won; the enemy is secure, because he is deeply rooted. Men will not hear the truth of the saying: 'The heaviest fight is against oneself: the most glorious victory is a victory over self.' People seek happiness and peace in wealth, in the satisfaction of their innumerable wants, not in the absence of wants and in contentedness. 'Man needs little to be happy, and he who is happy is a king.' Who believes it? A return to nature is the only means of regaining the 'Paradise lost.' 'Be on good terms with nature, and you will soon be on good terms with virtue,' says Seume; 'there is light enough about to gladden you, and strength and courage as much as you need.' He speaks truly."

## 7. Light.

There is an old proverb which says that "The physician never comes where the sun shines." It means that the sun is an important element in the question of our health, and that we shall fall a prey to disease if we seek to avoid the beneficent action of sunlight. When we speak of "light" there is always question of the light of the sun, to whose mighty influence our organism is subject, directly or indirectly, like the whole of the organic and inorganic worlds. "Light," says Neumann, "is a vibratory movement, perceived by the eye, of the extremely fine particles of the ether that fills the whole of space and all the bodies in it, just as sound is a vibratory movement in the atmosphere which is felt by the ear."

The importance of light — sunlight or daylight — is beyond question. It is light that enables us to make a proper use of our organs of vision, our eyes, in order to become acquainted with our surroundings: it gives us the necessary information in all our bodily movements, guards us from collision with other bodies, protects us from dangerous encounters, etc.



Plants and animals only grow under the influence of the light of the sun. How furtively the little blades of grass, after the long winter with its short, dull days, look out, at the approach of spring, for the first bright ray of the sun. Under the influence of the sunlight we see the whole plant-world deck itself with green and flowers, and thrive exceedingly. There are even plants that follow the course of the sun, turning their branches or their flowers towards it. Plants that are deprived of sunlight fade and lose their colours, even though other favourable conditions for their growth — good soil, manure, etc. — are available. Every movement on the earth depends on sunlight. The globe itself would lose all heat, and all living things on it would perish, if the sun were suddenly to refuse its service. There is no life without light — as without air. The sun pours out its strength on the plant and animal worlds as it does on man, who, unfortunately, rarely knows how to make a proper use of the beneficent influence of its light for the good of his health.

No living thing, least of all a healthy human being, seeks to withdraw itself from the soothing, gladdening, almost inebriating charm of the sunlight. He is certainly diseased who seeks out gloom and darkness, and he, too, who seeks the light and the sun without being able to feel at times that healthy, instinctive yearning — or he must, at least, have a nature of steel that could so long resist an unnatural life.

What a depressing influence do not the short, cloudy, dull winter days have on a sensitive person, and how we rejoice when ice and snow melt away and the long-desired sun bursts forth once more, to spread before us the green carpet of the spring. With the appearance of the spring-sun and the bright warm days, joy and gladness are enkindled in our breast once more, and we feel again the love of work, the desire to be up and doing, that may have disappeared. For not only the bodily but also the spiritual condition of man is dependent on the all-pervading influence of sunlight. Light, in conjunction with fresh air, pure water, a good diet, and a due proportion of exercise and rest, can do great things, if not everything, in the field of the natural healing of the sick.

The eminent natural physician, Rikli of Veldes, inventor of the air and light baths, may claim the whole merit of

first opposing the exaggerated application of water as a remedy. This is his maxim:

**"Water is good, but air is better, and light is the best of all."**

We are not aquatic animals, says Rikli, but air - and light - animals; and he justly remarks that we shall find the most valuable healing principles for our sick in the two elements which are the chief conditions of our maintenance and growth.

You will know by this time, dear reader, that the sun that warms the earth, and has a beneficent influence, as we said at the beginning of the chapter, on all organic life, must also have a powerful curative influence on man. However, let us look first at "the reverse of the medal," as people say, and study the poor folk who are deprived of the sunshine from one end of the year to the other. Let us go into the narrow, dismal, winding streets of a large town, or into gloomy, dirty, damp courts and alleys, or into workshops the air of which is saturated with all kinds of effluvia, carbonic acid fumes, etc. What do we find everywhere? Bloated, pale, and miserable looking people, with deep rings under the eyes, with thick noses and protruding lips, with unnatural, livid complexions, inflated paunches, and thin weak legs. Neither light nor air (at least, no healthy air, full of oxygen) ever penetrates into these dismal spots, worthy of the long-vanished Inquisition, but an utter disgrace to the civilization of the nineteenth century, with all its achievements in the world of hygiene.

Have you ever looked down from a height on the sea of houses of an industrial town which lay before you in a dim atmosphere of cloud, and smoke, and soot? Have you ever in your walk, by chance or by design, penetrated into the artisans' quarter of a large town, and seen with your own eyes all the care and misery that is stolidly hidden behind the monotonous brick walls? Have you seen it? Then you know why it is that there is more disease amongst the toilers and the poorer population than amongst the better-off, who can build themselves houses in dry, elevated, and sunny localities, and with wide airy streets and open squares. The poor folk are wanting in light, air, and sun — the very elements that every plant and animal needs for its growth. It is quite true that better food would also be necessary in order to raise the standard of the health of the "disinherited."

Yet it is air and light that have the greatest influence on our condition. It has been proved that there is more sickness in the houses of well-to-do people that lie on the north side of a street — though the streets are broad and airy — than in the houses on the south side. However strange it may appear, the hearse is seen more frequently on the north than on the south side. How true is the old proverb, "Where there is no sun the physician comes" — and when he has done his best and failed, death comes.

If, then, dear reader, you have the misfortune to live in a damp, gloomy house with a northern aspect, make every effort to exchange it for a brighter, more airy, and more sunny house. Rather put up with some inconvenience in other ways, so that you may do away with this unnatural existence, and secure more healthy conditions for yourself and your family. If you cannot avoid spending the day in unhealthy, badly ventilated rooms, you can at all events pass your few hours of rest and the night in a healthy dwelling, which has been exposed to the influence of the sunlight during the day. If all your rooms do not look towards the south — and that is very rarely the case — you must choose the sunniest of them all for your bed-room.

How fearfully the number of weak-nerved, poor-blooded, and anæmic people of both sexes is growing in our large towns! Do you find the diseases of the present age, "nervousness, anæmia, and poverty of blood," in people who live in the open air a good deal, in peasants, soldiers, foresters, hunters, and so forth? Certainly not. Then I urge you, dear reader, if you and your family are ill for the want of light and air, to use every hour you can spare to hasten out into nature — into the woods and the meadows. Leave the public-houses aside, and go on into God's beautiful world. Consider it a blessing for the sun to shine on you: it gives you strength and health, deepening the red colour of your blood-corpuscles and marvellously soothing and bracing your nervous system. Without light no blood — at least, no healthy blood — and without blood no life.\*

## 8. Warmth.

The sun is not only our principal and most pleasant source of light, but it also supplies man and the whole of

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\* See further under the heading of "Light and Air Baths."



creation with the warmth they need. Heat radiates forth from the sun with its light, and the more vertical the rays are, the more powerfully it acts. Hence it is naturally warmer in summer than in winter, and in the tropical zones the heat is more intense and constant than in the temperate and polar regions. Those are familiar facts.

In ordinary life we give the name of "heat" to the sensation which we experience on touching certain bodies; or we mean the cause of this sensation, that property of bodies which causes in us the sensations of heat, warmth, lukewarmness, coolness, and cold. As a rule people speak of heat as if it were a substance that emanates from bodies, and is conducted by them, and pervades them. That is not the case. There is no such thing as a material heat, because it does not possess a single property of matter, especially weight. We can only conceive heat as a manifestation of motion, a kind of vibration or swinging movement in ether, which, as we saw in the previous chapter, has a certain analogy with the vibratory movement of light and of sound; indeed, we often find all the three movements (sound, light, and heat) connected together (as, for instance, in firing a quantity of powder).

Heat, therefore, consists in the movement of the finest particles (or molecules) of the living body. This kind is called animal or bodily heat, whilst the chief source of radiant heat, as we have already seen, is the sun. Even friction, pressure, chemical action, especially combustion, generate heat. Coldness is merely the absence of heat, and the temperature of a body is the degree, or measure, of its heat.

In our natural method of healing we have to deal both with bodily or animal heat and with radiant heat, in so far as the latter has reference to our organism and its inherent warmth.

As you have already seen in the chapter on "Air," dear reader, when we are breathing — during which the oxygen of the entering air combines with the carbon - substances in the blood to make carbonic acid, which is then expelled — a process of combustion is going on, and our blood and our whole organism are raised by it to a temperature of about 98.6° F. (see under "Thermometer" in the Index). In a healthy man the temperature of the body is subject to very

little variation, so that we may justly consider the above as the normal heat of the body.\*

The more vigorously, therefore, this process of combustion goes on in the body, so much the more heat is, naturally, produced. And the more of this inherent warmth a man has, he feels so much the better and healthier. But the less the proportion of inherent heat in the human organism, the greater need there is of external or radiant heat to bring the body up to its normal temperature and maintain it there. The best form of radiant heat is supplied to the body by the rays of the sun. Coal, wood, turf, and other kinds of fuel only contain the heat of the sun which has been stored up in them from their first formation.

We must repeat then: Life would be impossible on the earth without the heat of the sun. Organic life develops only under the inspiring, warming rays of the sun, in conjunction with the moisture of the earth. Without the sun's influence all would be dead and cold on the earth.

In cold weather, when there is little external heat, the human body needs to keep up a brisker circulation of its material, that is, a more vigorous generation of heat, in order to feel comfortable and healthy. This is best done by suitable bodily exercise, warm, but pervious, clothing, etc.; in a less degree by taking warm food and drinks; and in a still less degree by the alcoholic drinks that are so much in favour in cold weather.

In the medical apparatus of our natural method of healing, heat — the heat of the sun as well as moist heat — plays an important part. Under the influence of the heat of the sun, especially in our baths of light, air, and sun, the circulation of the blood is quickened, the capillaries of the skin are filled with a greater quantity of blood, and a wholesome, cooling perspiration streams out of the countless pores of the skin.

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\* A temperature of 98° F. is maintained in all climates, whether a man be at the north or the south pole, exposed to an intense degree of cold, taking food that is rich in carbon (blubber, oil, etc.), breathing plenty of oxygen in the cold air, and so having an increased circulation of material, or whether he live in the tropics, cooling himself by a profuse perspiration, and eating food that contains very little carbon. The oxygen we take in with our breath keeps the body up to its normal temperature of 98° F., if we take the proper kinds of food and drink at the same time; when the temperature of our surroundings is excessive, we are cooled by throwing off a quantity of water from the skin in the form of perspiration.





## **Plate I.**

### **Methods of applying Water.**

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Fig. 1. Abdominal pack and pack for calf of leg.  
Explanatory text: pages 176 etc., 487 etc., 506 etc.

Fig. 2. Abdominal pack and Shoulder pack.  
Explanatory text: pages 176 etc., 497 etc.

Fig. 3. Loin pack (T. Bandage) and Neck pack.  
Explanatory text: pages 178, 494 etc., 503.

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Fig. 4. Three-quarter pack (open).  
Explanatory text: pages 178, 475 etc.

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Fig. 5. Whole pack (closed).  
Explanatory text: pages 178, 460 etc.

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*Fig. 1.*



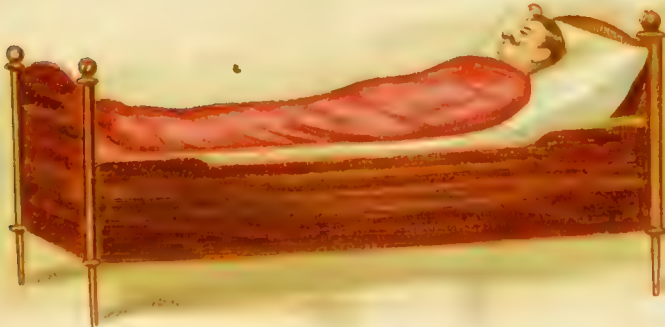
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



*Fig. 5.*





In and underneath the skin there is an immense network of little nerves which connect the power of feeling and sensation with the two central organs, the brain and the spinal cord, which through these are connected with the entire nervous system. Hence by a wholesome stimulation of the skin a man can brace up the whole nervous system and the entire organism; in fact, so powerful a stimulant may be given by the heat of the sun that great care is necessary in applying it for healing purposes in order to avoid an excessive stimulation and an injury to the body. (For further information see under "Skin" and "Light and Air Baths" in the contents.)

Moist heat has the same effect as solar heat. It is much used in natural healing, as I have said before, for the curing of ailments, and I will treat the subject more fully in another part of my work.

"It is in moist heat," says the distinguished natural physician Schroth, "that trees, fruit, wine, and even flesh and bone, thrive."

Moist heat is the basis of organic life: heat without moisture can neither produce nor sustain a living organism.

## 9. Water.

Just as heat is incapable, on the whole, of producing and sustaining living things in nature without moisture, so moisture is equally powerless without heat in the great laboratory of nature. We have an example in the dry heat of the desert which produces no vegetation; only in a few places (called oases), where there are springs, do we find trees, shrubs, and green grass. At the north and south poles there is no dearth of water. But do we find any trace of vegetation there? No: the requisite warmth is wanting.\*

As in the world at large, so it is in detail. Just as water plays an important part in the vast realm that spreads over the surface of the globe, so it does also in the maintenance of the human body. In the chapter on "What shall

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\* It is impossible to create or sustain life in nature with water or with heat alone: and it is just as impossible to sustain the human body with water alone without the requisite generation of heat, or, in the case of a water cure, by an application of cold water alone without the necessary reaction (the return of the inherent heat). We shall say more on this point later on.

We Drink?" I have already mentioned water as the sole proper and natural drink, and I said incidentally that 70 to 80 per cent. of the human frame is water. Since the water was not formed in the body by a chemical process, it follows that we must continually replace, by taking in more, the quantity we are always losing in the form of urine, perspiration, etc. Water is, therefore, one of the first and most important of all foods; without it we cannot maintain our health or life itself.

"As atmospheric air is a mechanical mixture of two gases (oxygen and nitrogen), so water is a chemical combination (that is to say, a mixture in which the parts have lost their original properties) of two gases, namely, oxygen and hydrogen. If you make a mechanical mixture of the two, like that of air, by simply pouring together one portion (say, a pint) of oxygen and two portions (two pints) of hydrogen, the result is called oxy-hydrogen gas; if a flame be applied to it, its parts chemically combine with a loud explosion, and form water." (Neumann.)

Good water is as pure and clear as crystal, shows no colour, sparkles when left standing, and has almost the same temperature in summer and winter. It always contains a little carbonic acid, and it has no taste whatever.

"Water that is chemically pure contains about eight parts (by weight) of oxygen and one part of hydrogen, but it is nowhere found in a natural condition. It usually contains lime, magnesia, iron, chloride of sodium, carbonic acid, silica, atmospheric air, and organic substances." (Wiel.)

Water that contains vegetable or animal ingredients is always injurious to drink. The best way to discover this is to let it stand for a few days in a tumbler or glass bottle. If it contains such matter you will then either find a sediment in the vessel, or the water will smell nasty. Hence the greatest attention should be paid to the quality of drinking water and the supply of water to large towns, sometimes having to be brought an immense distance, is one of the chief tasks of the civic authorities.

Impure water is filtered by specially constructed apparatus, containing porous stone. It is also improved by passing it through powdered charcoal.

In natural treatment — especially the water treatment — water is very extensively used. It is taken internally, but it is chiefly applied externally. As you have already seen,

dear reader, in my chapter on "What Shall We Drink?," the drinking of water is an iron necessity and an imperative need of every man. Not only are the solid constituents of our frame put together by means of water, but it is also the best means of breaking up the food we have taken, and then conducting it to the blood. In this fluid condition the nourishing matter pervades every part of the organism, and effects a renewal of the tissues. The used-up material, or the ashes, are then washed out of the tissues, and conveyed to the various excretory organs for removal from the body. All the humours of our body — saliva, gastric juice, blood, and the products of the various glands — contain little besides water. Even the bones, notoriously the hardest portions of our frame, are permeated by water in order to facilitate the renewal of their structure. No food in a completely dry form can be taken into the fluids of the body, or into the blood-vessels and lymphatics. Hence water is the chief agent in effecting the interchange of matter in the body, which is the most important indication of vital activity.

Physiological observations have proved that when an increased quantity of water is taken there is an increase in the quantity of solid matter excreted, and that, consequently, assimilation has been more brisk. Our nature, or rather the natural healing force that dwells in us, is always intent on creating movement in the body and expelling foreign matter from it. Hence when we take more water, not only is this circulation of matter quickened and increased, but the water has also an important healing influence, that must not be undervalued, in removing foreign matter from the interior of the body (unassimilable and morbid matter, cast-off or used-up material, and so on), especially in ridding the organism of substances that are no longer of service to it. And, besides all that, a drink of cold water refreshes, soothes, cools, brightens and braces one, and for healing purposes one may continue to take it for a long time without injury.

You will find more information as to the internal use of water in the second part of my work, under the heading, "The Internal Use of Water." I shall merely remark, for the present, that only the best and purest water that one can get should be used for curative purposes and for continual drinking. Mountain water — especially that which has its source in sandstone, porphyry, granite, and other rocks, and makes



its way through them — is generally the sweetest and purest. Amongst the least pure and the most unhealthy is marsh-water, which contains putrid vegetable substances, and water that has its source in large towns, the soil of which is percolated with the putrid remains and excretions of animals, that often find their way to the wells. People should be on their guard, therefore, especially against water taken from wells which are in the neighbourhood of slaughter-houses, stables, yards, etc. You do not need a knowledge of chemistry to tell whether water is pure or not. You can see with the naked eye if it is clear and pure. You can sip it, and see whether it is quite tasteless, and free from noxious foreign matter. You can tell by your nose whether there is something “rotten in the state of Denmark” — whether it is vitiated by putrid matter.

Hence institutes for the water cure and for natural treatment should only be built where water can be obtained of the best quality and in sufficient quantity. Chronic invalids, even of modest means, have now a good choice of a great number of such institutes, which are provided with excellent drinking-water. It is different in the case of acute illness and of those whose circumstances absolutely prevent a visit to one of these institutes. In such cases people must take what water they can get, filter it, and be sparing with the internal use of it. As to the external application of water, to which I now come, it is fortunately not necessary to be quite so particular about its quality.

Taken internally water is not only a solvent, but is also bracing, cooling, soothing, and refreshing; in its external application it possesses these properties in a much higher degree. “Water is a bad conductor of heat,” says Carl Munde, M.D., in his “Hydrotherapeutics.” “Although at a comparatively lower temperature it quickly deprives the heated body of its warmth, it only parts with a tenth part of that warmth, and retains all the rest. In this way we can understand the action of what are called stimulating bandages and wrappings of wet cloths, which are infallible means of cooling without giving cold. In cases of high fever temperature with a dry skin, these wet-cloth bandages are the only sure means of reducing the dangerously high temperature and stimulating the action of the skin. Yet one need not be astonished at the vitalizing power of cold water, when one considers the effect of a low temperature on the organism in general, and remembers that water is nine-tenths oxygen.”

"People should wash the whole body every day in fresh water," says Hufeland, "and it will be found to be extraordinarily invigorating."

The fact is that water, externally applied at a low temperature, has a stimulating effect on the skin, which passes on to the nervous system and from that to the blood vessels. At the same time it acts on the electricity of the body — a property which the nerves possess, and which sets the physiological machinery of the body in motion and maintains it.\* It is now determined by scientific men that the vital force in man, the motive power of his machinery, the natural healing principle, is of an electrical character, and undoubtedly resides in the nervous system. Hence, in a certain sense, this nervous organ is the only organ in our body that lives: all the other organs are vitalized by it.

In water we have a means of acting successfully and energetically on the force that dwells in the nerves in the form of electricity, more or less powerfully according to our desire. Physical science teaches us that water withdraws a good deal of electricity from a body. As I pointed out above in an extract from Dr. Munde's "Hydrotherapeutics," water belongs to the class of bad conductors. Bad conductors of heat are also bad conductors of electricity. Bad conductors, therefore, retain both heat and electricity. Hard water, containing more or less earthy ingredients, is a weaker conductor of electricity than soft water, which is a good conductor of electricity.

One of the most distinguished writers on the water-cure, Dr. Pleniger, proves, in his "Special Pathology and Hydrotherapeutics," that cold water can extract heat and generate electric currents in any part of the human body; hence the function of the entire nervous system may be regulated according to the temperature and the duration of

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\* To give a brief explanation of the many various functions of the human organism, I shall only say, for the present, that the bony skeleton and the muscles are intended to give firmness and the capacity for movement to the frame. The lungs and the skin convey new material to the body in a gaseous form; the digestive apparatus supplies it with liquid or liquefied-food; and the lungs, skin, kidneys, and bowels get rid of used-up material, which has become useless for its formation and sustenance, and even prejudicial. The whole of this activity — the physiological machinery — is controlled by the nervous system, which spreads over the whole body like a kind of telegraphic network with two central offices, the brain and the spinal cord.

the application of water. "We can incorporate water with the body," says Pleniger, "introduce it into its cavities, and choose any part of the surface we like for our operations; in the latter case we deal with the peripheral terminations of the nerves, the stimulation of which goes quickly and strongly enough to the corresponding centres."

In the chapter on the external use of water in the second part of my book I shall deal fully with things that I cannot even mention here. For the moment, dear reader, I am content to point out briefly to you the relation of water to your body and your nervous system. But you can see from these few brief remarks, that water, according to its temperature and the length of its application, is a safer and prompter means of healing than physic, especially when the use of it is supported by other natural healing principles, such as air, light, diet, exercise, rest, etc.

Father Kneipp says, in the introduction to his "Water Cure:" Water, especially our water cure, cures all remediable diseases: the different applications of water, with which we seek to cut out the roots of disease, are able:

- a. To dislodge the morbid matter in the blood;
- b. To expel the dislodged matter;
- c. To restore the purified blood to its proper circulation; and
- d. To brace up the enfeebled organism — that is, to strengthen it for renewed activity.

When water is applied at a low temperature, for a short time, it serves as a stimulant and tonic. When it is applied at a higher temperature and for a long time, it has a moderating, soothing, and cooling influence.

I shall find plenty of opportunities in the course of the book to enlarge more fully on the application of water for healing purposes than it was possible to do in the present chapter.

## 10. Metabolism.

I have many times already spoken of metabolism, or the renewal of substance in the body. Although, therefore, I must assume that the meaning of the expression is not unfamiliar, nevertheless I shall now deal with it more fully, and show you that our health depends very largely on the free and constant circulation of the substance of our body, and that



the curing of disease is on the whole only a quickening of this circulation. As the late Dr. Bock, who found so little favour with his colleagues on account of his popular works on health and disease, says: "Know that in every sickness the material of the body is changed, because the circulation or renewal of this material has been perverted or hindered."

As you know, we distinguish between an organic and an inorganic world, organic and inorganic nature, and organic and inorganic substances. Organic bodies, or organisms, are those productions or creations of nature which are provided with certain instruments (organs) or structures, to be used in their formation and maintenance, and in which a greater or less number of these organs unite to form a definite individual.

To organic nature, or to the class of organisms, we human beings belong, as well as the animals and plants. Every thing else on the earth belongs to inorganic nature.

In these organic bodies we notice certain vital processes. But there is one such process common to them all — the renewal of substance. It goes on continuously, every portion of the organism being renewed by the deposit and formation of new material and the renewal of the old. As long as this process of renewal continues with some regularity in an organism, it is said to live. When this vital process, or circulation of material, ceases, the organism is dead, and decomposition sets in. If the renewal goes on very slowly or imperfectly, if, for instance, the used-up material accumulates anywhere in an organism, or the deposit of new material is interfered with, it is diseased.

To come from general principles to particulars, let us state that the human organism is subject to the same laws as all other organic bodies. The human body is continually changing. From day to day, from week to week, from month to month, from year to year, there is a steady change of its substance.\* The process does not cease for a moment, either in rest or in motion, by day or by night. Children slowly grow into men and women, and these die after gradually assuming the features of old age — that is, when they have reached the term of life that nature has allotted. The healthy may fall sick — the sick may recover. The

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\* It is supposed that the human body is entirely renewed in the space of seven years.

source of the malady may be a defective renewal of material — an imperfect importation of new matter or an imperfect removal of the old.

But the change which this renewal involves in man is not confined to his outward form; every portion of his interior is affected, because the material of which his internal organs are formed is equally subject to continuous change through the removal of used-up tissue and its replacement by new substance. It is this process that we call by the name of the renewal of substance, or metabolism.

In the animal organism, especially in the case of man, this process of renewal is maintained by the food we take, by water, heat, and the action of oxygen.

As you saw in the two preceding chapters, dear reader, oxygen is contained in both the inorganic substances, air and water.\* We take in oxygen with atmospheric air, which is composed of one part oxygen to four parts nitrogen. It is also absorbed to a certain extent through the skin, both in air and in water (in the form of baths, bandages, etc.), the latter being composed of hydrogen and oxygen. From the lungs the oxygen received is passed into the blood, where it combines with the carbon of our food. This gives rise, with a certain generation of heat, to carbonic acid, an extremely poisonous gas, which is in its turn breathed out of or exhaled from the body.\*\*

The more oxygen is taken into the body, the more vigorously does the process of decomposition or combustion of those materials, which are in a sense destined for removal, proceed, with a certain development of heat, and the more quickly is the useless refuse expelled from the body. Hence by taking more oxygen we secure an increased circulation or renewal of the substance of the body.

And now for the application of all this, dear reader: Breathe deeply and strongly in good air, rich in oxygen, and keep your skin clean, so that you always enjoy a brisk

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\* Air, water, the rocks and the soil belong to the "inorganic world." They are called "lifeless, soul-less, dead, inorganic bodies." They have no organs with which to build up a definite structure and secure their existence.

\*\* The bodily material that has been used-up or consumed by the action of oxygen is not only removed by breathing or radiating from the skin, but it is partly expelled through the bowels and kidneys, together with the remains of our food and water that are of no use for the nourishment of the body.

circulation of material. Take to heart this incontestable truth, that life means "a renewal of substance."

As I have already said, breathing, or, more properly, the action of the oxygen that is taken in breathing, causes a combustion in the body that again generates heat. This heat is the inherent heat of our body, which our blood, or our organism in general, obtains by this process. Hence the more energetically this process goes on, so much the more heat is generated. Active exercise (hygienic gymnastics, walking, running, riding, etc.) increases the circulation of material, and so augments the inherent heat of the body at the same time. More oxygen is taken in during active exertion than during repose. The blood, which is the recipient of the oxygen, is driven through the body in a swift regular flow, and that considerably assists the process of combustion and the removal of the used-up material.

Even passive exercise and the mechanical actions of massage (stroking, rubbing, beating, kneading, pounding, etc.) more or less increase the circulation and the generation of heat.\*

Our health and comfort are closely connected with this inherent heat of the body. Plenty of heat means plenty of health and energy. If, on the other hand, little inherent heat is generated, there is a distinct craving for more external warmth in order to keep the body in its normal, healthy condition. It is better for the health to generate as much internal heat as possible, and dispense with external warmth. The best and most natural form of external heat is to put oneself directly under the rays of the sun.\*\* When the tem-

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\* Disturbances and obstructions of this circulation of substance form the majority of what we call diseases. If, then, it is good to bring about an increase of the circulation after one of these obstructions, it is clear that we have valuable healing factors in the different applications of our natural method of healing and the water cure — in the various kinds of baths, bandages, wrappers, shower and vapour baths, and the regulation of diet. Special attention must be paid to pervious clothing and proper bedding, to the due proportion of work and recreation, exercise and repose, etc. Normal circulation depends on all these things. There will be many chapters and passages on these matters in my work, and to these later sections I must refer you, dear reader, for further information.

\*\* We may call the sun's heat the natural form of external heat. Artificial external heat is produced by burning things with the concurrence of oxygen. The heat of the sun is infinitely preferable, because other important health-factors, light and air, may co-operate with it. Artificial heat robs the room in which it is produced of the oxygen we need for breathing.



perature is low there is little external heat to be had, and the influence of the cold on the body, or on the nerves of the skin, causes a brisker metabolism, in order to sustain the internal heat at its normal height. By the use of warmer, but pervious, clothing and bedding (see the following chapter), the bodily heat, which is always streaming off from the skin, may be retained at the surface of the body.\*

The internal heat of the human body may also be increased for a time by taking hot or warm food and drink. Alcoholic drinks, too, generate a momentary warmth.

As you already know, dear reader, the human body, like all other organisms, contains water. The water that is present in the body, especially the fluid in the tissues and humours of the body, has the function of keeping the combustive process on the right track, just as the oil in a lamp serves to prevent the wick from burning down too quickly. Hence the quantity of fluid in your body prevents too much waste in the combustive process, by offering a very timely resistance to the oxygen in its task of dissolving and removing. It beneficially limits the combustion, and tones down the circulation and keeps it within bounds.

On the other hand, dear reader, you can discover by your own experience that when your body is deficient in, or has been deprived of, the necessary moisture, a more vigorous and extensive combustion sets in; the increased temperature of your body and the rapid beat of your pulse inform you of it. This increased combustion and excessive circulation is called "fever." As I shall show you in a later chapter, this is nature's way of making up for disorders in your vital process; the coming of fever is almost always to be regarded as an effort of nature to alleviate certain troubles in the interior of the body. Of course the fever must not be allowed to reach a dangerous height; its ardour must be moderated and restricted, if you want to derive an advantage from this healing process on your return to health. But of this more later on.

If a decrease of the quantity of moisture in your body causes an increase of the circulation, on the other hand an

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and releases carbonic acid (the outcome of combustion) in its stead. Hence artificial heat must take a secondary place.

\* Bedding and clothing must be pervious, not only in order not to interfere with the activity of the skin, but also so as not to prevent the absorption of oxygen by the skin.

accumulation of too great a quantity of moisture disturbs and interferes with the circulation. Hence excessive drinking — unless it be accompanied by a plentiful removal of the moisture in the form of perspiration — must certainly retard the circulation, and so it is unnatural and unhealthy.

Unfortunately, a great deal too much moisture is introduced into the body nowadays in the form of wine, beer, coffee, tea, soup, etc. Drinking has become the fashion. Hence we must not be astonished at the many disorders of circulation that come to light in the shape of an immense variety of diseases. Is there any ground for astonishment at the physical degeneracy of the race when it has become a rule to drink beyond your thirst, and the vice is defended not only as a matter of taste but as a means of passing the time?

In the feeling of natural thirst nature has given us a clear indication how much liquid to take into the body. But the thirst must be natural, not one that has been artificially produced, as is so often the case with those who indulge in beer and other liquid stimulants. That is to say, certain substances are brewed with the beer — if they do not arise of themselves in the course of the fermentation — so that an artificial thirst may be produced after drinking; and this thirst is, unfortunately, only too often conciliated with another long pull.

Once the natural thirst is quenched, there is as much moisture in the body as is necessary for the circulation. In a case of fever an intense thirst arises. The interior of the body has been robbed of its moisture to a great extent by the increased combustion, and so it craves for the injection of more fluid. In such cases it would be a great mistake to disregard the explicit and instinctive craving of the body for liquid.\* I shall have more to say about fever in a special chapter later on.

The nourishment that has been introduced into the body replaces the material that has been released in the combusive process and removed by the excretory organs. It must include all the kinds of matter which go to the construction of the body. The chief of these elements are

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\* But it is not very long since medical men used to forbid the giving of water to fever patients, for fear it would injure them. It will easily be understood from that fact what an utter change of views there has been in the sphere of physiology.

about fourteen in number — nitrogen, carbon, hydrogen, oxygen, calcium, sulphur, phosphor, potassium, sodium, chlorine, fluorine, magnesium, silicon, and iron.

These fundamental elements unite to make the following compound substances — water, albuminates, lime, fat, salt, phosphoric and carbonic acid, calcium, potassium and sodium.

Albuminates, also called nitrates, form the foundation in the construction of the human organism.

It is essential, therefore, that the body be supplied with such food to replace the excreted products of circulation as contains plenty of albuminates, and may serve to build up the frame. Still, albumen must never be taken alone in a concentrated form, but should always be taken with starchy or carbonate foods. Otherwise the digestive organs may easily be injured by the excessive proportion of albumen, and be prevented from digesting food properly afterwards.\* Likewise, we must only supply the body with as much food as it needs to replace what it has lost. The substitution must be in proportion to the circulation. Before it is supplied with nourishment the body must manifest a craving for it by the appearance of the feeling of hunger. And before the food that is introduced becomes suitable to replace the used-up material, it has to undergo a process of dissolution and preparation, or assimilation, in the digestive organs.

Professor Reclam, M.D., says, in his "Key to Health," with regard to the relation of work to the renewal of substance: "The great blessing of work is that it uses up the material of the blood, and new blood is formed in the body. Work makes us healthy and strong by using up our material in this way, because it leads to the renewal of the used-up tissue, and so promotes nutrition. Nutrition consists in the assimilation of the nourishment we have introduced in our food and drink from the blood into the various parts of the body. The circulation of substance strengthens and renews us by this nutrition."

"We continue to live as long as the renewal goes on in the way described. Hence the food that supplies the nourishment necessary for the renewal is a real 'staff of life.' The circulation of the material of the body is the foundation of its life."

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\* See the chapter on "What Shall We Eat?"



"We are healthy — able to work and think, leap and laugh, eat and sleep — only so long as the renewal of material goes on generously and energetically."

"Therefore those who wish to be healthy and able to meet the tasks of life must keep up a brisk circulation; they renew their life and strength every day by means of it."

"It is better to be poor and healthy than rich and unhealthy. To be bright and healthy is better than gold, and a sound frame is better than great possessions. There is no wealth that can compare with a healthy frame, and no joy like the joy of the heart."

## 11. What Shall We Wear?

In answering the question, what shall we wear? we shall not consider the uncivilized natives of warm countries, who wear little or no clothing on account of the fierceness of their climate. Our attention must naturally be confined to the inhabitants of colder climates and of certain southern lands, who wear clothing for protection from the weather, to prevent too great a radiation of heat from the body, out of a sense of decency and propriety, and because it is the fashion.

If we were to attempt to deal with every stage of the modern reform of outer and underclothing, we should be taken too far from our point. A criticism of the advantages of this or that article of dress, especially with regard to its material (wool, cotton, linen, silk, etc.), is not without difficulty when we recollect the familiar truth that no two men are made alike, and that what suits the one may be far from suitable to the other. Just as we have to take into account individual taste in the matter of food, so we must also in the choice of material for clothing, besides the fact that custom and the abuse of custom have a good deal to say in the matter. One person, for instance, can easily wear woollen under and outer clothing, whereas another person cannot; one feels quite well and comfortable in the Kneipp under-linen, another finds the Lahmann reformed-cotton to be the best of all kinds of underclothing; a third prefers underclothing of raw silk, a fourth a mixture of wool and cotton, linen and cotton, and so on. It would therefore be a very questionable proceeding to urge a certain clothing material for universal use as the most perfect, as absolutely

free from objection from the hygienic point of view, and as sufficient to meet all requirements. The learned may continue as long as they please to discuss the respective merits of animal and vegetable material for clothing, and whether it be better to wear wool, cotton, linen, or silk, next to the skin. I am not a learned man, but a man of plain thoughts, and I can only say that in the light of my experience I consider it impossible to put all men on the same footing with respect to clothing.\*

As long as that tyrannical goddess, Fashion, wields the sceptre, as long as people act on the principle that "the clothes make the man," learned and unlearned will fight windmills, like Don Quixote, in urging the fact that clothing should meet, first of all, certain most important requirements on the ground of health. My advice to those who think more of their health than of conventionalities is, as far as these various clothing reforms are concerned — "Try them all and stick to the best."

The first and chief requirement in clothing on the ground of health is that "both the outer and the underclothing must be porous or pervious;" this point is frankly

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\* Personally I find pervious, pure-wool outer and underclothing to be the best. I have been for many years a faithful follower of the Jäger woollen régime, but I am not prepared to urge it fanatically upon everyone, whether he wants it or not. I have not noticed in my own case any of the evils which are said to result from constantly wearing woollen clothing; on the contrary, during the years I have used clothing and bedding of pure wool I have experienced better health and increased energy. Nevertheless, the favourable results of my own experience of wool, particularly during my stay in tropical South America, are far from justifying me — with all respect to the able and distinguished thinker, Professor Jäger — in setting up the "wool cure" as a universal panacea, and declaring woollen clothing to be suitable for everybody. In fact, in the course of my practice as a natural physician, I have met a number of people who could not do with clothing and bedding of pure wool, either because their bodies were so burdened with poison (the products of combustion not removed, the results of fatigue, foreign matter, the residue of medicine), that they could not respond at the critical moments of the wool cure, and so prevented them from continuing to wear the woollen clothing, or because the uncomfortableness, irritation, and other unpleasant experiences they attributed to wool were really the outcome of a natural prejudice against it. From other people I have heard nothing but praise of the virtues of wearing woollen under and outer clothing, and sleeping in bedding of pure wool. Others found it best to wear the Lahmann underclothing of improved cotton, and the Jäger outer clothing, and to sleep in the Steiner reformed bed. I was convinced in the end that one thing would not suit everybody, because in sensitive people it depends very much on "auto-suggestion" whether a thing agrees with them or not.

conceded, with regard to underclothing, by the whole reform movement in clothing, and is met with in all the different systems. With regard to the perviousness of the outer clothing there is only the wool-material of Dr. Gustav Jäger that entirely meets this first and supreme requirement of the hygiene of clothing.

This important hygienic law of the perviousness of clothing, particularly underclothing, to the air, is a fundamental element of all reform in dress, and Dr. Max von Pettenkofer has given point to it in the following sentences: "Our skin was intended to be always in contact with the air." — "The air should not be stopped by our clothing." — "It is not the object of dress to shut us from the air, but merely to temper the approach of the atmosphere to our skin."

We need scarcely say that it is universally recognized at the present day that dress is capable of having a very considerable influence — beneficial or otherwise — on our health.

If, to begin with, we consider the great importance to the skin of a change of air, we soon find how great a variety of demands are made on that organ.

We breathe with the skin, as well as with the lungs, although the process of breathing through the skin is not announced to our subjective consciousness. We take in oxygen through it, and expel carbonic acid through it. "An exchange takes place in the pores of the skin between the gases of the blood and the atmosphere" (Falkenhorst).

The skin is also intended as an excretory organ; it gets rid of the grease of the skin, sebaceous acid, moisture, the products of combustion, etc. The skin has an intimate connection with the renewal of substance, with which it is in constant reciprocal action.

It is well known that the poisonous residue of decomposition is cleared off through the skin (remember the unpleasant effluvia which come from a large number of people, the state of the armpits at times, sweaty feet, etc.); and it is, moreover, a matter of experience that these excretory substances are extremely poisonous when they are detained and stored up in the organism. Hence the suppression of the action of the skin is very dangerous, and may have most serious consequences.

Our clothing, therefore, must be pervious, so as not to



interfere with the breathing of the skin — and certainly not to suppress it altogether — but to admit a free passage of the air to the skin and a free exit of the used-up material cast off by the skin.

If we now consider the clothing that is used at the present time from this point of view of the necessity of perviousness, we have to pronounce, in most cases, that this condition is not complied with at all.

Perhaps, dear reader, you have noticed sometimes in summer in changing your linen, that when you were drawing your shirt — made of linen, half-linen, or cotton — over your head you felt for the moment a hot, sultry, close air that seemed to take your breath away. Here you have an obvious proof that your exhalations gather under your shirt in the form of noxious gases, which could not get through the closely-woven dressed\* material of your shirt, and the equally close and artificially prepared lining of your outer garments. Closely woven materials have the disadvantage of preventing the passage of the gaseous exhalations from the skin; and they have the additional evil that the vegetable tissues, out of which your shirt and the lining of your clothes are manufactured, become completely impervious as soon as they are wet with perspiration, because the threads — spun out of the fibres of plants — swell with moisture, and entirely stop up the meshes of the cloth.\*\* If, in addition, the shirt is provided with a stiff, starched, linen front by way of “ornament,” there has been a double filling-up of the meshes of the cloth with starch.

It is not much better in the case of your outer clothing, whether it be of tweed, or serge, or any of the ordinary materials. The woollen cloths that are generally on sale in the shops are too thick and heavy to permit the entrance of the air to the skin and the removal of the gases that emanate from it.

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\* In order to make yarn smooth and strong for weaving it is steeped in starch. This operation is called “dressing.” This is done in order to prevent the breaking away of the threads in the cloth, as they are generally spun out of short fibres. When the cloth is ready the dressing is taken out of it. It is impossible, however, to extract all the dressing by boiling or scalding, as the yarn was steeped in starch and absorbed a good deal in the process; a great quantity of it must remain in the threads. Every time the garment is wet (by perspiration, etc.) the threads swell, and this causes a decomposition of the old starch that they absorbed in the dressing.

\*\* This disadvantage is avoided in the Lahmann reformed cotton clothing, since the threads that are used in weaving the cloth have been spun out of long-fibred material, and so no “dressing” is necessary.

It is clear that such clothing must have a very injurious effect on the health. Even at times when the skin gives off only a moderate exhalation, the space between it and the shirt is so full of steam that the close-woven, stiffened, fibrous underclothing becomes dripping wet with the drops of perspiration, and the slightest draught makes it stick to the body with a cold, wet sensation. Things are naturally very much worse when a great quantity of perspiration is given off. A linen or cotton shirt, as it is generally thin, will be found to be completely wet through in such cases: the moisture goes through to the equally impervious lining of the outer garments, which gets in the same pitiful condition; the heat that is necessary, in virtue of the physical laws, to evaporate this moisture has to be supplied by the skin, when one wears linen underclothing, and so the temperature of the skin is considerably reduced. This in its turn still further lessens the radiation from the body, as it can only take place when the skin is at its normal heat and has its normal supply of blood. Then the blood vessels in the skin close up through the coldness of the wet shirt clinging to it, so that between the suppression of radiation and the stopping of the blood a number of disorders are bound to follow.

As a rule the evaporation of the moisture is either entirely prevented by the impervious garments, or is reduced to very slender proportions, so that the body has always around it a noxious atmosphere of cold vapour which, for the reasons we have stated, may lead, and often does lead, to a good deal of sickness. The renewal of material is impeded, and there is an enfeeblement or a stoppage of circulation — in a word, the normal functions of the body are more or less seriously deranged. "Our entire heating-apparatus and our power of regulating our temperature depend on the action of the skin." "By our clothing we make a special climate for ourselves and a semi-tropical climate of 77—86° F." "When we wear cloth of a coarser and looser texture we can regulate our temperature better." (Pettenkofer.)

Hence our skin is also an apparatus for regulating our temperature, and this cannot be done by merely wrapping up and swathing the skin in garments. If clothing is to be rational, it must allow the heating of the body, protect us from sudden changes of temperature, and also permit the radiation of a certain amount of heat through the skin. But it is only by the admission of air to the skin, the renewal of the air at

the skin, the repletion of the skin with blood, and an unimpeded exhalation, that the skin is in a position to carry off this superfluous heat. To our constant over-heating by our clothes we owe that continual danger of catching cold, which is enough to poison the whole joy of life.

“What we call a cold,” says Professor von Pettenkofer, “does not really mean that we have lost more heat than usual, but frequently the contrary, that we have retained too much heat.”

This is confirmed by the old saying that we are only apt to catch cold when we are warm, or only very rarely when we are cold.

“The feathers of the bird and the fur and wool of the animal, serve the same purpose — to temper the approach of the air to the skin into perfect calm — they never entirely prevent its approach. The more heat the body gives off, so much the warmer will be the stratum of air next to the skin, and so much the more quickly will it ascend and be replaced by fresh. If the air about the skin is too cool it closes its pores, and the radiation of heat is so much restricted, that not simply a cold but freezing to death will be the result.” (Ottomar Steiner).

When, however, we wear loosely-woven, pervious clothing, the breathing of the skin, the regulation of our temperature, and the exhalation from the body, take place very differently. Whilst impervious garments cause a condensation of the steam and sweat underneath them, these porous clothes freely permit the gaseous exhalations from the skin to get away. Naturally, the porous underclothing itself is wet by the steam from the body, especially by an outbreak of perspiration, but, since by a wise regulation of nature air is a bad conductor of heat, the air that is in the loosely-woven cloth keeps the skin from cooling, and the sweat soon evaporates under the heat that is detained in the texture of the cloth. No very great increase in the generation of heat is necessary for the evaporation of the sweat, because the heat of the surface of the skin is of the same kind as that of the steamy perspiration.

We have now seen, dear reader, how just is the demand of hygiene that we must only use pervious cloth for our garments. But we have not got any nearer the answer to the “burning” question as to what kind of material — wool, silk, linen, or cotton — our pervious clothing must be made of in order to satisfy all the demands of hygiene.



In order to determine which material is most suitable for human clothing, it will not be out of place to cast a glance at nature, and study our living fellow-creatures, the animals, because man does not occupy any special and exceptional position in nature, as is so very widely and erroneously believed.

Every animal is in free and unimpeded communication with the atmosphere, its vital element; the air moves freely over the entire surface of its body. "The animal," says Steiner, "communicates with the air by means of a countless number of longer or shorter canals, in the shape of feathers and hairs made out of a horny substance, which may be regarded, in a sense, as an extension of the pores of its skin. If we were to admit the air to the skin only by a few of these openings or ventilators, or to shut it out altogether, the animal would certainly lose its vigour and die."

"We learn another lesson from nature," he says again, "when we consider the position of these hairs and feathers in the skin of the animal. The animal's clothing can no more touch its skin, and have an influence, like our clothing, on its health and comfort, than the grass touches the field, or the trees the wood."

Nature has arranged all things wisely and well. The cause of movement in the air is its bad conduction of heat, and this particular circumstance is important in the heating of every warm-blooded creature on the earth. The animal is kept warm neither by fur nor feathers; the heating-process must be referred exclusively to the quantity of air in its natural clothing.

However we cannot arrange our clothing like that of the animals, so as to prevent it from touching the skin. Hence we must make a careful choice of material for our garments, if we do not want their immediate contact to have too irritating an effect on the skin.

The clothing — both under and outer — that is now in vogue is composed of fibres which are derived from both the animal and the plant world. Fibrous materials have very different effects on coming into contact with our skin; they either irritate it or they are indifferent to it. And here we come to the chapter on the "difference of opinion of the learned." All are agreed that, if the clothing is to serve its purpose, it must be porous, it must not interfere with the movement of the air at the skin, it must allow a free

exit of the exhalation, and must regulate the production of heat and its radiation from the skin. Moreover, the two opposing leaders of the clothing-reform movement, Dr. Gustav Jäger and Dr. Lahmann, are agreed that our outer clothing must be porous, and must only be made from animal products — from woollen fibres. The controversy turns on the character of our underclothing.

Without going fully into the two systems — the “Jäger” and the “Lahmann” — for the present, we must recognise that all material that is made out of animal fibres has a continual irritating effect on the skin — greater or less, according to the quality of the material — and keeps it in an irritated condition; whether this irritation is a wholesome or an injurious stimulus is a question we cannot enter upon at present.

On the other hand, cloth made out of vegetable fibre is indifferent to the skin, and it is only when it is very coarse that it provokes a momentary irritation.

At all times people have sought to moderate the roughness, and friction and itchy character of yarn — both rough and fine-spun — from animal fibres (or the cloth woven therefrom) by inserting cloth of vegetable fibre between it and the skin in the form of “under” clothing, or of lining to the outer garments; this, being perfectly neutral, has no irritating effect on the skin. For the making of this intermediate stuff people chose the tender fibres of cotton, linen, and half-linen.

The heat-conductivity of the various fibrous materials is much the same, but they differ considerably in their capacity for absorbing air. The vegetable fibres, which are generally soft and smooth, lie close together in the woven fabric, and so thrust out the air from the meshes or interstices between them. On the other hand, animal fibres, especially of wool, contain more air in their more open and irregular texture.

Thus we see from the different qualities of the fibres, that wool is indispensable for the heating of our body; only our woollen fabrics must not be woven too closely, or used in such a way as to press all the air out of them.

Let us hear what Ottomar Steiner has to say in his admirable work\* on the relation of the different fibrous materials to water, colour, and other qualities:

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\* “The Bed and its Influence on Our Health.”

"Wool shrinks at every washing [only when it is done wrongly — Author], and the fabrics that are made of it lose their capacity to retain air and to absorb moisture; when they are old they are not so warm as when they are new. Cotton and linen fabrics, on the contrary, show no great change of texture, but rather increase their capacity for absorbing water as they get older, on account of the repeated washing. It is well known that new linen and raw cotton cannot be used as lint; one needs old linen or bleached cotton. By frequently sprinkling water on vegetable fibre in the sunshine, or by certain chemical processes, it is possible to hasten this desirable maturity, and thus prepare linen and cotton for the making of clothing."

"But vegetable fibre loses its natural brownish or grey-yellowish colour in bleaching and becomes white, so as to show more clearly the dirt that adheres to it. This latter circumstance leads us to a fourth point — the relation of fibrous material to colour."

"Apart from the fact that the animal world contains wool and hair of every possible shade, not affected by water or sunlight, animal fibres have a much closer relation to colouring matter than vegetable fibres; their tints are essentially "fast" colours. Purple, recognised in the Old Testament as a pure red cotton stuff, indigo blue, and the new diamond-black, are interesting exceptions in cotton colouring."

"To give a precise form to the question of clothing, our requirements may be summed up as follows:

"Clothing must, 1, keep the body warm; 2, conduct heat away; 3, regulate the flow of air to the skin; 4, ward off dirt and such like things in the surroundings from the body; 5, protect from contact with anything that would irritate the skin; 6, permit the passage of the effluvia from the skin; 7, bear witness to the civilized condition of man; and 8, retain its good qualities as long as possible."

"The number of our requirements proves that the teaching of science and of nature on the subject of clothing is much more important than the directions of our journals of fashion, that man is something more than a walking clothes-screen, and that wrong ideas about clothing are sure to prove prejudicial to health."

"We satisfy all these requirements when we wear over as much of the skin as needs covering a light, soft, and porous fabric, and change it twice a day, morning and evening."



"It does not matter whether we choose cotton or linen for these garments if both are bleached (not yellowish!) and quite porous.\* When it does meet most of the conditions we have enumerated, it takes away the moisture and grease from the skin, needs to be kept clean and to be changed daily, affords an opportunity of washing the whole body at this time of changing, protects the body from friction and dirt, does not interfere with the movement of the air, and does not detain the heat."

"The latter condition may be referred to our outer clothing, because we can conveniently alter these as we wish, whenever our skin manifests a want of air and cooling by means of a feeling of discomfort in the entire organism."

"All the qualities of wool go to recommend it for our outer clothing; and as long as the earth exists, and cold and heat, summer and winter, succeed each other so regularly, people will continue to use the many admirable properties of wool to make an adaptive and accommodating protection for their skin."

"Stiff, glazed lining is another great blunder in our modern system of clothing. A lining is indispensable for the purpose of preserving the shape of our outer garment; hence industry has a high and noble task in the invention of a porous lining material, which, like woollen fabric and our underclothing, will not interfere with the very necessary circulation of air."

Such are the opinions of Ottomar Steiner, the inventor of the improved form of bed, of which I shall speak in the next chapter.

Climate, temperature, season, weather, age, sex, and constitution, necessitate a great many modifications in the choice of clothing, and leave a good deal of latitude in the matter. The morality and the customs of a people have also to be taken into account. Fishermen, sailors, and people who live on the coast in general, have a preference for woollen outer and underclothing. They have found that cloth of vegetable fibre is not good for them, on account of the danger of catching cold. As the moist sea air wets all their garments so that the wool-fibres almost lose the irritating property they have in a dry condition, such people can wear woollen

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\* Linen is firmer and more durable than cotton: cotton softer and lighter than linen, Cotton may be spun finer and twisted firmer than linen, and so lasts the longer of the two.

clothing without feeling too great an irritation of the skin. There is a similar advantage in using thin woollen clothing in the tropics, with this difference, that in the tropics it is the constant heavy perspiration that wets one's clothes. The Arab wears a white mantle of woollen felt, which hangs loosely about him, and so does not interfere with the circulation of air at his skin, and does not absorb very much heat. The inhabitants of the far north and the arctic regions wear thick woollen clothes, but of a coarse texture, and garments of skin, in which air — a bad conductor of heat — may lodge in sufficient quantity to warm them.

Delicate, ailing, and elderly people should be recommended to have underclothing of wool and silk — woven into a pervious fabric, of course, — and it is always to be recommended in cold, damp weather. For young and strong people, on the contrary, who can generate plenty of heat, cotton is the best. If, dear reader, you have been accustomed to wearing wool, and you have suffered too great an irritation of the skin from it,\* you can change it for silk or cotton whenever you like without any fear of injury to your health. You can wear silk (which is not generally dear — it is only certain manufactures that run to a high figure) and cotton either summer and winter; they are preferable to linen for underclothing, because linen gets too cold when it is wet with perspiration.

Since, as you know, light colours radiate and absorb less heat than dark, especially black, it is advisable to wear light "natural" colours both in summer and winter. Our social conditions, on the other hand, prescribe differently, even on other than special festive occasions, and we do well to follow them, even though hygiene raises a protest against it.

The man who starts a campaign against universal customs

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\* If you have hitherto worn warm woollen underclothing underneath outer garments of impervious material, you have done yourself a good deal of harm, whether you think so or not. Underclothing of pure wool, especially a woollen shirt, causes a good deal of blood to flow to the skin, and consequently a considerable exhalation from the skin. As this is confined by the stiff, glazed lining of your unnatural outer garments, and makes it wet and malodorous, the net result is — a damp and evil smell in the air in your clothing; the skin is placed, as Dr. Jäger justly remarks, in a kind of damp room which greatly weakens it, and makes it extremely sensitive. All this may be changed by having outer clothes and lining of wool alone. As the emanation from the body is able to make its way through them into the outer air, the skin remains dry and gets firm and hard. Dryness means firmness; moisture causes debility.

nowadays, and supports it by unconventional, though rational, conduct, must be prepared to meet with opposition on every side — opposition that is rarely made on a sound basis of fact, but that makes for the personality of the man who “dares” to have an opinion of his own, different from that of the majority, on any important question, and who attempts to put his theory into practice. When a man tries to swim against the stream there are always plenty about to make the water rough for him, and to hamper and discourage him, perhaps for the sole reason that they are conscious of their own inability to attempt it.

And in these times, when one man makes it difficult enough for another to get on in the struggle for life, unless you have a solid, secure, and independent means of subsistence, you pronounce your own sentence of death when you attempt to change or suppress ancient rules and forms that are sanctioned by general acceptance. The revenge of men generally takes the form of ruining the life of the one who is bold enough to rebel against their “sacred” traditions, even if it be only a question of traditions in clothing. As a champion of wool I could sing a pretty song about my own experiences and those of others, but I will avoid the subject as far as possible here.

But let us return from this little digression, which I could not help making, to our proper theme of “clothes.”

In the next place, clothes should be neither too tight nor too wide. Experience teaches that too narrow or too wide garments are cold, and so we must observe the golden mean. Clothing that is too tight, moreover, interferes with our movements, causes derangement of the circulation of the blood and other maladies, restricts the renewal of substance and the exhalation from the skin.

For men’s outer garments pure woollen material such as is used in cyclists’ costumes, is much to be commended. Coat and vest, if you do not prefer to wear merely the Jäger coat — not open in front — must both be lined with pervious material of wool. As far as possible, natural or light colours should be chosen for the outer garments and their lining.

The evils of tight-fitting, impervious garments are most conspicuous in the case of soldiers. It is owing to the unpractical, high, stiff collar of the military coat, which interferes with the flow of blood from the head, that so



many of the soldiers get sunstroke during heavy marches and manœuvres in a burning sun.

The waterproofs that are now so much in favour are completely impervious, and consequently extremely injurious to health.

But the evils of tight-clothing in men are eclipsed by the injury which women bring on themselves by the use of corsets. I shall deal more fully with this instrument of torture in the chapter on women's ailments, and I shall not withhold my opinion of it from my lady readers. I need only remark for the present that a corset can only be tolerated when it fully meets the hygienic conditions of expansibility, porousness, and washableness. Corsets that are like coats of mail, made of impervious, glazed, vegetable fibre material, and squeezing the most important organs of the body to a frightful extent, are extremely injurious. How often do we not find a woman's waist the seat of tedious herpetic eruptions, because the products of the bodily exhalation cannot get through the corset, and the decomposing matter of the dressing in the corsets irritates the skin. Then, it is an important hygienic condition that the corset be washable. A garment that is so close to the body as the corset absorbs so much dirt and effluvium after being worn for some time, that it most urgently needs washing occasionally.

For physiological reasons it is most imperatively required that the corset be expansible. I shall deal with this later on in the chapter on the diseases of women.

No girl should wear a corset before the age of puberty, because it would hinder the development of her body and do serious harm to the abdominal organs. Every woman would do well to wear an elastic knitted undervest instead of a corset. As a rule, moreover, the corset is laced too tight, either for elegance of appearance in the bust, or because the enfeebled body of the woman craves for a support. Happily, there are now less of those slaves of fashion who care little about poverty of the blood, chlorosis, etc., as long as they can boast of a waist like that of a wasp.

Another fault in women's clothing is that they heap garment after garment on their backs. Skirt and coat, blouse and corset, drawers and chemise, go one on top of the other, and form a six-fold layer over the lower part of the back. Hence, the latter becomes too warm, and the proper distribution of blood and the exhalation from the skin in this part of the body are impeded. (Jäger.)

There is much more room for reform in women's clothing than in men's. It is very difficult to induce them to give up their impervious twills, and linens, and calicoes, on account of their snowy whiteness, and begin to wear woollen or cotton underclothing in natural colours. Then the shape of women's drawers leaves a good deal to be desired, if drawers are worn at all. Women's jackets are, of course, open at the bottom, and so, although the tight fit and buttoned bodice present a difficulty, their drawers ought to be closed round the body as completely as a man's trousers. Apart from considerations of cleanliness, it is most important, on the ground of health, that women should wear proper drawers or combinations; as a rule, however, they have drawers that are too open round the body, and do not afford sufficient protection against chills in the abdomen. The fact that women are so frequently ill in this direction is certainly partly owing to the nature of their underclothing.

The outer garments of women should also be made only out of pervious materials. Instead of choosing cotton or half-woollen clothing, as thin as a spider's web, which is generally provided with glazed cotton lining to give it firmness in the waist, they should select for their garments a pervious, stout, woollen, knitted material, that does not need lining, and that has the additional merit of falling into natural folds and not needing to be trimmed and decked with all kinds of artificial folds and puckers. The number of garments may safely be reduced if a woman wears a good warm dress-stuff. It must not be supposed that a woollen dress is only good for the winter; and is too hot for summer use. Wool — that is, uncoloured (natural) and light-coloured wool — is a bad conductor of heat: in summer it keeps off the heat of the sun from the body, and in winter it prevents the heat from radiating too quickly from the body. These qualities of woollen outer garments in relation to the human organism are further assisted by wearing pervious woollen or cotton underclothing.

An attempt to reform feminine costume was made several years ago with the Hirschberg Wörischofer reformed costume. It is certainly the best at the present moment, because it is modern without having any of the injurious features of modern dress.

I shall now put before my lady readers an article from the "Wörischofer Blättern," together with an illustration of

this new costume, and trust in the interest of their health that it will find many imitators amongst my good readers.

"The need of a reform of feminine dress, which has been felt in every country in Europe for many years, has become more pressing every day of late, partly on account of the evils of tight lacing, partly owing to the danger to health of the long dresses which catch up so much dust and dirt, and also on account of the daily increasing luxury, which has been a source of unspeakable misery to many families. Innumerable journals made suggestions of all kinds, but they were never thoroughly taken up, either on account of vanity, or a want of energy on the part of the majority of women. The suggested reform departing very widely from prevailing fashions, the ideas had no practical result whatever. But it looks as if we have at length discovered, in the Wörishofer costume, a simple, practical, healthy, and cheap, and at the same time thoroughly becoming and decent, costume. It is sure to be a great success."

"On the plan of the woollen cloth costume (the Marietta), that I designed last year, and that was made by Hirschberg and Co., of Munich, in a variety of shades, and sent out even to an enormous distance, the Wörishofer reformed costume has been designed, as it is shown in the accompanying illustration, to meet the many wishes that had been expressed. The following is a brief explanation of it:

"It is a smooth, unlined dress of waterproof woollen material, drawn into plaits at the waist behind, and quite free at the feet; round the waist are flaps and buttons at short intervals for the purpose of lifting the skirt well up out of the dirt in walking or mountaineering, and especially in running barefoot through wet grass."

"It has a loose blouse, as wide and puffy as possible, with a sailor collar, leaving the neck free. It may be made, according to individual taste, in fine wool or cotton material, on the English, Russian, or any other pattern, but always so as to avoid the use of those pernicious steel corsets. The corset may be replaced by a knitted or crotcheted vest, which is inexpensive to buy, or by a simple vest with flaps and bands, such as children wear, to give firmness to the dress and the bust."

"The characteristic part of the costume, however, is the jacket, drawn in behind at the end of the waist and quite loose in front, made to wear open or to close in cold or rainy



weather; it has a turn-down collar, which leaves the neck free, and a woollen cape, according to age and taste, such as is often found in travelling cloaks."

"For running barefoot, either in the house or outside, sandals are used somewhat different from those in the illustration, with leather caps and hygienic soles.



Fig. 11. The Wörishofer reformed costume.

"The immense advantages of this costume will be obvious to everyone who is interested in the question of healthy and practical dress for women, because it is:

1. Cheaper than any other modern costume.
2. Light and becoming, and waterproof, so that one does not need an additional "waterproof."

3. Pretty, yet not too conspicuous, since it is not so very different from the current fashion.

4. Very durable.

"I have worn my woollen dress almost uninterruptedly for a whole year, and it is as good as it was on the first day, in spite of rain, travel, and pulling-about. And the fact that these woollen fabrics may be had in every possible shade — grey, brown, navy-blue, dove-colour, and even black — ought to remove the scruples of those who are still under the lash of vanity, and fear to lag behind the fashion of the day by too much simplicity."

"The followers of Father Kneipp and the natural method of healing will find special advantages in this costume. Running barefoot through wet grass or over wet rocks, which is so inconvenient in ordinary dress, is very easily done in such a practical costume, and will give no occasion for ridicule to the most inveterate joker. The virtues of the costume will be fully recognised by those who cast aside all the vagaries of fashion and seek better health and general comfort — to say nothing of the increase in the family purse. It is made in all kinds of material, so as to be brought within the reach of everybody."

"So do not hesitate, you good ladies who care more about health and comfort and economy than about vanity and show — the follies of fashion that ruin the health of so many: leave off your steel corsets — those coats of mail that mar the beauty of body that God has given you — and adopt the comfortable Wörishofer costume. A costume that is healthy, decent, pretty, and becoming can only be for your good. (Meta)."

What we have said of the clothing of adults applies also to that of children. Both their under and outer clothing must be porous. Girls and little boys should not be given linen or cotton (unless it be "reformed cotton") outer garments in the summer time. Apart from their imperviousness, they are apt, especially in the evening, to absorb the moisture from the atmosphere, on account of the amount of starch they contain, and thus they easily lead to chills.

If I am not mistaken, it is in Spain that we north-Europeans are considered dirty because we do not put on a clean shirt every day. The Spaniard is quite right from the hygienic point of view. In any case the shirt must be changed twice in every twenty-four hours — a night-dress to

be worn in bed, and a shirt during the day. With this change a man can get through the week very well with two or three clean shirts. But it is necessary to air the night-dress well during the day and the shirt during the night, in order to get rid of the exhalation from the skin. Hence the shirt must not be put under the pillow during the night, as many people wrongly do. Whether the shirts are porous or not, and whether they are made of wool, cotton, linen, or silk, makes no difference as far as changing and airing are concerned. This must be done regularly and thoroughly under all circumstances.

The same applies to all other underclothing (pants, women's undervests, corsets, stockings, etc.). Even the outer garments that have been worn during the day must be aired at night, and no garment must ever be worn for more than twenty-four hours at a stretch.

Another point of great importance is the question of covering for the head and the feet.

Head-dress is a most important chapter in the hygiene of clothing. It is very significant in connection with the increase of baldness. It is well known that baldness is found more frequently amongst men than women. It is true that digestive trouble, morbid combinations of humours, nervous ailments, excess, severe mental work, etc., have a good deal to do with this affliction, but there is no doubt the chief cause of it is faulty head-covering. The fact that women suffer less from baldness is due to the healthier character of head-dress. It is not only lighter, better ventilated, and more porous than that of men, but it is also worn well up on the hair, so that there is always plenty of room for a free movement of air between the skin of the head and the hat. Moreover, a woman's occupation confines her to the house more, so that she more rarely has occasion to cover her head. The diseases we have just mentioned, which have only a minor influence in producing baldness, afflict woman just as much as they do man.

Hence the first and most important condition of head-covering must be porousness; then it must fulfil the same hygienic requirements as the rest of our clothing. The best kind of head-covering would be none at all. However, fashion, custom, and in so many cases the weather, forbid that. Hence we can only recommend a light and pervious head-dress, so that a stream of air may continually flow over the



hair and skin of the head, and the exhalation from the roots of the hair may be unimpeded. The hat must not be lined, and it must have a number of air-holes in the sides and the crown. The strip of leather that is supposed to be on account of perspiration must be left out altogether.\* It interferes with the exhalation, and is apt to provoke eruptions on the forehead by its colouring. Thick felt hats, and caps of skin or cloth, are by no means commendable, even during very cold weather. They heat too much, so that the head perspires, and it is very easy to catch cold by the sudden cooling of the head when you take off your hat. They are, moreover, quite impervious, and prevent exhalation. Silk, and other stiff, heavy hats have the same harmful characters. Military headpieces are frequently complained of on account of their causing the hair to fall off.

Light hats, according to the general principles of hygiene in dress, must be preferred to dark, and especially black.

People should go bareheaded as much as possible, or accustom themselves to do so. Air and light have a very beneficial action on the roots and growth of the hair.

With regard to foot-covering, we have to consider both stockings and shoes. Both must be porous, if they are to meet the requirements of hygiene. It is very important to have proper covering for the feet. We have to avoid "cold feet," which are caused by the withdrawal of the blood from them, and also to avoid interfering with the supply of blood to their skin and with its exhalation, because the feet have an important share in distributing the blood through the body. It is clear from the number of people who complain of cold and sweaty feet, that a proper clothing for the extremities is rather the exception than the rule nowadays. It is not difficult to find a porous material for stockings. The Jäger woollen régime and the Lahmann reformed cotton system, and a number of others, have sufficiently provided for that point.\*\*

But it is far different with our outer foot-clothing, our boots and shoes. The shoes that are now generally worn by

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\* Dr. Jäger recommends a band of woollen felt round the forehead, and Dr. Lahmann one of reformed cotton. Hence there is room for choice. It is best to leave the hat empty, as is the case with the Turkish fez.

\*\* It is injurious to wear garters, because they stop the circulation of the blood, especially when they are above the knee. It is advisable to wear long stockings, and fasten them to a belt round the waist.

no means meet the hygienic requirement of porosity — not even low shoes, or button or laced boots. The kinds of leather that are used in making boots, and the blacking that is put on them entirely do away with perviousness. But it is a most difficult thing to invent a foot-covering that will meet all our hygienic requirements, and at the same time satisfy all the conditions as to durability, elegance, and protection from the weather, which custom has laid down in the matter of boots.

Dr. Gustav Jäger has certainly made the best suggestions so far as to the production of rational foot-covering.

He recommends the wearing of crotcheted woollen shoes, with or without leather caps, and shoes of chamois or white leather, and the hides of undomesticated animals (buck-skin, doe-skin, buffalo-skin, etc.). Jäger praises the woollen shoes because they are porous, and do not make the feet cold when they are wet. "Wet wool — warm wool," he says. The buck-skin, etc., have the same qualities as dry and wet wool. Unfortunately we cannot make an elegant, firm, and durable shoe out of wool-work alone. Porous leather has the additional disadvantage that it gets very dirty, and the dirt cannot be brushed off, but can only be removed by washing. And if the leather is wrongly treated in washing it, it gets stiff and hard.

Dr Jäger writes on the subject as follows:

"The only material that meets our modern requirements as to firmness and appearance is tanned leather, but it is bad for the health, because it begins to positively stink after being worn some time. This evil quality can only be got rid of by washing out the residue of the tanning with soda, and then steeping it in a grease that does not become rancid; vaseline is the only fat of that kind. However, leather treated with vaseline is waterproof, and if a boot or shoe is made entirely out of such material, the exhalation from the skin of the foot is impeded; at the same time a shoe that is made entirely of vaseline-treated leather is incomparably better and healthier than one made of ordinary leather."

"In order to make the ordinary shoe as healthy as possible, and at the same time to take into account the modern ideas of shape and durability, we have to make a combination of wool and vaseline-treated leather, or of chamois leather and vaseline-leather, the sole being made of the firm vaseline-leather and the upper of wool or wild-leather."

But the best kind of foot-covering is none at all. We should keep our feet bare. The fact that walking barefoot has been universally adopted in the programmes of the various hygienic reforms proves that it is an important factor in health and healing. We shall have more to say about it later on. For the moment we shall only say: "Every grown-up person and every child must seize every convenient



Fig. 12. A bare foot with sandal.



Fig. 13. A foot with stocking and sandal.

opportunity in the summer time to indulge in so beneficial a practice, which, unfortunately, still has against it the full force of 'decency' and human ignorance." To walk barefoot is one of the best ways of hardening oneself; and that it is not injurious, but the reverse, in winter time, is proved by the lithe, elastic figures of the little urchins who run about



barefooted all day long, radiant with health. Walking bare-foot on wet stones, on newly-fallen snow, in water, etc., is a practice that is applied in a variety of ways in Father Kneipp's system. For further information on the subject see under that heading in the Index.

That people are becoming conscious of the folly of wearing an irrational, unhealthy, and unnatural foot-covering, is sufficiently clear from the number who now wear, at least in summer, shoes that are quite open across the foot and have the appearance of sandals (see the accompanying illustrations). Even the familiar black polished boot is giving way in summer to brown boots, and even to porous leather shoes, that do not need polish. As we have seen already so often, dark colours must be entirely avoided in clothing of all kinds, for a variety of reasons. Children ought never to wear boots, except in severe weather, when gloves also are worn.

Indiarubber shoes are also impervious, and therefore unhealthy.

Now I come to the close of this chapter on clothing. It has been rather long, but that was unavoidable. Although I have imposed plenty of restrictions on myself on account of the abundance of material, I could not leave out a single point that it was necessary to make clear in the interest of your health. Healthy food, healthy air, healthy clothing, and healthy bedding, are inseparable ideas, when there is question of recovering or maintaining your health.

## 12. How must We Sleep?

The bed has the same importance by night as clothing has during the day. If considerations of health impose certain conditions with regard to our garments, they do so much more urgently with regard to our night-clothing — that is our bedding — because as a rule we spend a third of our lifetime in bed, gaining new strength for the day's work.

"The question as to how a good bed should be made is one of the first importance, though it is so very rarely asked" (Falkenhorst).

The science of health lays down the same conditions for our bed as for our clothing. It must be pervious: it must not interfere with the movement of the air to the skin of the sleeper: it must freely give passage to the exhalation

from the skin and permit a good circulation of the blood: it must, finally, allow a normal heating of the body and radiation of heat from the skin. All these conditions are strictly necessary if the bed is to be considered as a proper covering or protection for the human body during the night time.

Does the modern bed usually fulfil all these conditions? By no means — not a single one of them! In bed, it is generally said, we must be packed as warmly as possible — we must not be frozen to death; and in point of fact there are thousands of people who, in other respects, have a good deal to say about rational training, care of the skin, food, and clothing, and study them in their own lives, yet perform perfect marvels in the endurance of heat with their feather beds and down quilts at night.

It is to this traditional feather bed, dear reader, your legacy from your mother, grandmother, and great grandmother, that I am going to throw down the gauntlet in the present chapter. There is plenty of room for a reform in this direction, if we will undertake to banish from the world, in the shape of an unwholesome bedding, one of the chief sources of disease.

It is true that what may strictly be called a "feather bed" is not used as a covering in England — only in Germany and a small portion of Austria — but the down quilts that are so much favoured by us are open to the same objection.

As all my lady readers know, the feathers or down have to be placed in a tick or case, and in order that this shall serve its purpose properly of holding the feathers, it is made of thickly-woven material, and "dressed" so as to be quite impervious. In this way the change of the air next to the skin under the quilt or cover, and the exhalation and radiation of heat from the skin, and also the internal organs of the body, are completely perverted from their natural purpose.

As you have read in the chapter on "What shall We Wear?" dear reader, our skin is charged to a very great extent with the duty of regulating our temperature. As an organ of breathing and excretion it plays an important part in the renewal of the substance of the body (see the chapter on that subject), and therefore a lengthy inactivity of the skin during our sleep (seven to eight hours) — that is, an interruption

of its functions — must cause derangement not only in the skin itself but in the whole of the body. Just as happens when we wear the wrong kind of clothing, the prevention of the circulation in the skin and of the exhalation and radiation from it by these down quilts leads to a weakening or debility of the skin. This enervation of the skin by the use of down quilts and defective clothing may well be the principal cause of the necessity for obviating their evil effects by cold massage, cold baths, etc.

The unnatural packing in down quilts and feather beds begins almost with the birth of the child. "The first mistaken care of the mother for her babe," says Steiner, "is contrary to the nature and the character of man."

"The prevalence and spread of diphtheria at the present day can only be due to our conditions of life, to the obviously increasing effeminacy of our children, who are kept too warm from the very beginning; and shut off from the air, etc." (Dr. Reil.)

In a feather bed with a down quilt the whole body soon glows with heat, for the heating properties of feathers are well known. Man is clearly destined to live in pure air, yet with his bedding and clothing he is more effectually shut off from it than any other creature on earth, and kept day and night in the vitiated atmosphere of his own effluvia. His skin and his whole body are so much weakened, that what with this debility and a habit\* that has become a second nature, he is at length only capable of going on "incubating" under his down quilt. The fact that a man can sleep at all in such circumstances is proof enough of the extreme debility of his skin. A really healthy skin could not endure it. But where in the wide world, in our present unnatural conditions of life, shall we find a thoroughly healthy skin? Is there any health anywhere?

We have been speaking of down and feather coverings, but to lie on a feather bed is just as injurious. When the two are combined, as is so often done, the body is of course doubly injured.

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\* Just as our body is so much changed in its inner nature by the continued use of injurious things (luxuries and stimulants, tobacco, coffee, tea, wine, beer, whiskey, etc.), that it no longer perceives them to be harmful, though they continue to act injuriously all the same, so it is also with regard to the use of feather beds and down quilts. The time comes when people cease to feel them to be bad for their health.



Parents and teachers must take note that the fearful prevalence of "solitary sins" amongst young people of both sexes at the present day is largely due to the use of down quilts and feather beds — to the "heating property" of feathers, which create a sort of tropical climate during sleep, and, according to the laws of physiology,\* bring about a congestion or increased flow of blood in the sexual organ and a premature sexual development.

Excesses amongst married people are also in most cases due to the heating quality of down and feathers.

Unfortunately many parents and teachers utterly disregard these most important and serious questions; they pay attention to anything and everything before learning to take an intelligent care of their own health and that of their children. Tender parents shudder at once when you talk to them of training and hardening their children reasonably, and have visions of baths of ice-cold water when you recommend rational methods of bracing them up. They never dream that bedding and clothing are means of hardening as well as enfeebling. But we shall deal further with this question in the chapters on "Hardening" and "Debility."

When feathers are thrust into linen or cotton ticks and cases for covering the body during the night, they have an additional disadvantage. They not only prevent the flow of the air to the skin of the sleeper, and consequently the change of air at the surface of the body; they not only detain the effluvia from the body of the sleeper, but they also prevent the clearing away of their own moisture from the bed.

"In their dry condition," says Falkenhorst, "feathers contain about 10 per cent. of water, but they absorb from 20 to 25 per cent. in a moist atmosphere."

"All feathers," says Ottomar Steiner, "develop a musty smell even with a very small degree of moisture. They show signs of a beginning of putrefaction, as is quite natural, since they are so closely connected with the most perishable elements — flesh, skin, and marrow. Bits of flesh and skin remain attached to feathers when they are plucked out. This is a very important fact."

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\* As, in consequence of being covered with the impervious quilt, the products of combustion, exhalation, etc., cannot get away through the skin, they seek a passage through the bowels and kidneys, and throw so much extra work on these organs. This leads to an increased circulation of the blood in all the abdominal organs, and thus the sexual organs are also excited and heated.

"Remember that every piece of decomposition that emits a smell and corrupts the atmosphere means an immense number of fungi, spores, and bacteria (ten varieties of them were discovered in a feather bed by a doctor of Leipzig), and that this sort of thing is going on in our night covering, in immediate proximity to the body. How about the people, then, who have such a tenderness for their dear, comfortable beds?"

"The worst thing for us is a vitiation of the air by carbonic acid and carbonic oxide; these are the gases that come from putrefying matter, the malodorous sebaceous acids (out of the feathers or down), the effluvia from man himself, his clothes, food, and articles of daily use" (Sonderegger).

"The air is particularly rich in microbes or fungi — the tiny organisms that effect decomposition — in rooms where there are old clothes, feathers, and all kinds of refuse" (Dr. Reil).

All feathers — whether they be from living or from dead animals, whether new and good or old and bad — are subject to decomposition, which is a consequence of the moisture they never lose, and the shreds of fat and flesh that cling to them. The putrefaction is the more intense where the feathers are older, until it reaches its climax in feather-rot.

Steiner has other interesting remarks on beds and bedding in his book on "The Bed." He writes:

"We must also do away with the good old belief that to disinfect the feathers, by drying them in the sun or in special machinery for cleaning them, defers for any great length of time the process of decomposition. From the nature of the case the smoking or cleaning of feathers is only a harmless interruption of the unperceived life of millions of tiny living things. After a few days it is developed afresh under the action of the moisture and heat from the sleeper, especially in damp bed-rooms, at the sea-coast (in sea-bathing institutes!), and in the beds of people who perspire much."

"How pitiful is the lot of invalids and babies who have to keep their bed for days and nights together! They always feel it a great blessing to leave their bed once or twice a day, and give their lungs and skin an indulgence for a few moments in the better and cooler air they long for."

"Wherever there is bad air, dirt is not far distant. There are great defects in our ideas of cleanliness, and so

we must endeavour to improve them by comparing the nocturnal habits of other nations."

"In the Mosaic Law we find many commands to the Jews to wash all their clothing; these garments, made of goats'-hair, wool, cotton, or linen (mixtures were not permitted), served as bed clothing at night. Hence their clothes and their bedding were often thoroughly washed. We find similar regulations amongst other ancient nations."

It is quite clear that the feather bed, still so much esteemed in some quarters, is a source of much ailment. Pressure of blood in the head and other organs, general irregularity in the distribution of blood in the body, restless sleep and dreams, a tired and peevish feeling in the morning, and other phenomena, are undoubtedly the result of injudicious bedding. Toothache, headache, and rheumatic pains are notoriously aggravated by sleeping in feather beds, and what increases a malady cannot be recommended with a good conscience to any man as a means of preventing any kind of trouble.

Moreover, the natural moisture of the feathers also keeps the ticks and sheets of linen or cotton damp, so that the body has an unpleasant sensation of cold on going to sleep and awakening, which only vanishes after a few cold shivers. The hot, congested, giddy head of the sleeper, and the disordered state of his circulation, cause the feet to become icy cold. This it is sought to remedy by putting a warm bottle to them — an additional means of weakening!

The great prevalence of insomnia at the present day is certainly due, for the most part, to the unnatural conditions of our nightly rest. The first stage of it is a feverish condition; the head gets very hot, the feet cold, and one cannot obtain the sleep that is so much desired. After many vain attempts to sleep, there is a mild outbreak of perspiration, which is the moment for releasing, in the form of the many noxious matters contained in the bed, the foreign or used-up matter in the organism; but sleep is still far off.

"Feather pillows," says Falkenhorst, "must be entirely avoided. It is a curious paradox for a man to expose his head — which should always be kept cool — to the air and sun and weather during the day, and then bury it in a feather pillow at night, which has a very heating effect on it. It is also very bad for the health of the sleeper that the carbonic acid he has given off in breathing during the night cannot



escape from the depths of his feather-pillow. One per cent. of carbonic acid in the atmosphere makes it useless for breathing purposes. Professor Lahmann, who examined the beds of a number of sleepers, found as much as seven per cent. of carbonic acid in the depths of some of these feather pillows.

We can now easily understand how it is that there is so much lung disease, poverty of blood, anæmia, nervous debility, and other troubles. People do not die now — they poison themselves! "To bury oneself in a feather pillow, and ornament it with frills and put curtains round the bed, are just so many ways of poisoning oneself," says Dr. Hartmann-Gigger, "and often enough a source of disease and trouble which people find out when it is too late, or even not at all."

And now let me ask you, dear reader, can sleep give us what we expect of it — recovery of the strength we have spent during the day — when we commit our body to a bed which is so full of injurious qualities?

As you have read in the chapter on "Metabolism," there is a constant circulation of the material of your body during the day owing to your bodily or mental activity. This circulation, to repeat briefly what I have explained, is brought about by a combusive process in the interior of the body. In this process carbonic acid — an extremely poisonous gas — is produced. The carbonic acid that is not removed during the day by the breath and the exhalation from the skin remains in the body. This retention of carbonic acid is, in a sense, a process of poisoning, and its symptoms are fatigue, languor, and drowsiness.

The fatigue disposes us to sleep. Then the carbonic acid in the body should be removed by deep breathing and a free exhalation from the skin, and the blood should be impregnated with oxygen during sleep in the place of the removed carbonic acid, so that the body may awake fresh and vigorous in the morning, and head and limbs may be strengthened for another day's work.

And the greater your expenditure of strength on the preceding day, so much the longer, deeper, and sounder should be the sleep that follows it.

But I ask you, dear reader, is the body likely to get rid of its carbonic acid if we sleep in a feather-bed. Is it capable of exhaling it from the skin, or, if one has a feather-pillow also, of breathing it out? Sleep is the measure of

our healthy condition. Good health is closely connected with sound sleep, and bad health with disturbed, restless sleep and sleeplessness. A restful sleep at night is absolutely necessary for a man, if he is to remain healthy and accomplish his daily task with pleasure and love. Sleeplessness and restless sleep are frightful troubles. Take away from a man all hope and sleep, and he is the most miserable of creatures.

Besides many other derangements of health, which happen every day in the course of our duties, sleep has to make good for us the injury we do ourselves with our wrong clothing and food. But how can it do this, when the evils of our feather bed are greater and more injurious, perhaps, than all the troubles of the day put together? We cannot mend the harm done to us by wearing impervious clothing if we go on to have unwholesome and abnormal bedding at night, because this itself does not fulfil the condition of perviousness. We must not fail to appreciate the importance of having pervious clothing, but at the same time the fact that we spend quite a third of our life in bed, in normal cases, should make us particularly attentive to see that we have normal and natural bedding. In the opinion of the renowned natural physician Rikli, our whole life ought to be a continual air bath. No one will lightly dispute the healing power of fresh air. But how can we hope to retain our health, when we do all we can to keep away the stream of air from our body and our skin, when we carefully secure by our perverse clothing and bedding that the approach of the air to the skin, the renewal of the air at it, its proper circulation of blood, exhalation of vapour and radiation of heat, shall be restricted and impeded by day and night, and the skin shall only have an opportunity to escape from its hermetically sealed case and its perverse treatment during the brief moments when we change our clothes, or take a bath, or something of that kind?

But do not imagine, dear reader, that I am going to recommend you, in opposition to the heating and enervating feather bed you have hitherto used, to expose your body directly to the cold night air in bed, or to sleep in a cold room with thin coverings, on a mattress as hard as stone. "When we have not got the warmth of movement," says Steiner, "we must be very careful with our own inherent heat; sleep has not a purifying and constructive effect in a

frozen body, in which the life process is retarded. The rest of the muscles and the coolness of the night make it necessary to have warmer covering than we need during the heat and toil of the day; every animal of the field or the wood makes or discovers for itself a warm shelter for its nightly rest."

"Our skin is intended to be always in a free current of air," says Professor von Pettenkofer. It is only civilized man's ignorance of the laws of nature and of health that has made it possible for the feather-bed to be regarded so long as a household treasure.

How, then, must we make our bed, in order to meet all the requirements of hygiene?

In the first place, dear reader, if you are going to consult your bodily welfare by reforming your bed, rid yourself of your feather-bed and down quilts. If you are under the necessity of being economical, use a sack or mattress of straw or seaweed or fine shavings, on which you can stretch a cheap woollen cloth (a horsecloth), and you will feel warm and comfortable. People in better circumstances may choose a mattress of horsehair with a woollen case,\* a mattress of some other hair or wool with a woollen case (the "Jäger" system), or a steel-wire mattress with two under-mattresses (the "Steiner" system). The two under-mattresses in the Steiner system take the place of the horsehair mattress. Each of them is in three parts — thus permitting a frequent alteration in the position of the sections (an economical feature!) — and is covered with linen drill on one side and cotton knitted work on the other, and filled with horsehair under the linen drill and wool under the knitted work.

Under the head there should be a bolster of horsehair with a woollen case, and a pillow stuffed with wool (the "Jäger" system) or with horsehair (the "Steiner" system), with a knitted case (Steiner system).

For bed-clothes you should use woollen blankets or camelhair cloths — one or two in summer, and two or three in winter — or a quilt stuffed with wool with a knitted cover, and a down or woollen quilt to cover the feet. Woollen blankets are now so cheap, that even people of slender means need not hesitate to get them. For coverlets

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\* Woollen cases are made of porous woollen felt or drill.

and counterpanes woollen and cotton knitted work (which is well ventilated) should always be chosen.

The bedstead should be of iron. If it is a wooden one, it should be well polished and varnished both inside and out. Unpolished wood should never be seen.

Just as there is a cleansing of the Augean stables of medicine at the beginning of a new hygienic epoch, in the shape of our admirable natural methods of healing, so we now find a great need of modification and improvement in the field of hygiene. Two men in particular have distinguished themselves in the question of bed reform; they saw with profound insight what it was that suffering humanity needed most, and where the germs of disease, sickness, and premature death lurked unseen.

These two men are they whom I have already mentioned so frequently — Dr. Gustav Jäger, of Stuttgart, and the manufacturer O. Steiner, chief of the firm of M. Steiner and Son, of Frankenberg, in Saxony; they contrived, in view of the demand for a reform of bedding, to introduce a kind of bed which combined elegance, comfort, solidity, and value, with the quality of porousness and a fulfilment of all the other hygienic conditions.

In recognising the merits of the Jäger "wool bed" and the Steiner "reformed bed," I am not, of course, acting as an agent for those concerns; I get no remuneration for my recommendation, and indeed I take it to be beneath the dignity of a respectable firm to buy such an advertisement, when its own name is a sufficient guarantee for the providing of proper and wholesome material of a good manufacture.

Both beds (see the accompanying illustrations) are free from the evils which we find, not only in the worthless feather bed and down quilt, but also in spring feather mattresses, in horsehair mattresses with linen ticks, and in horsehair pillows, which pay no regard to the heating apparatus in the body and cause an unequal distribution of warmth in it, and which are unsuited to permit the proper movement of air at the skin of the sleeper, and result in a good deal of discomfort.

I might content myself, in describing the normal or wool bed and the reformed bed, with referring you to what I have written in the preceding chapter on "What shall We Wear?" All reforms of clothing apply also to bedding. The



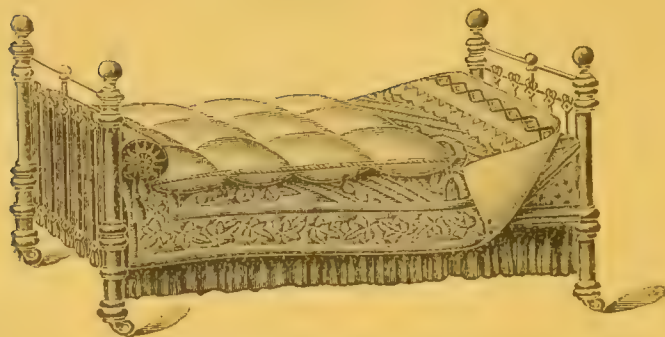


Fig. 14. The Steiner "reformed bed" for adults.

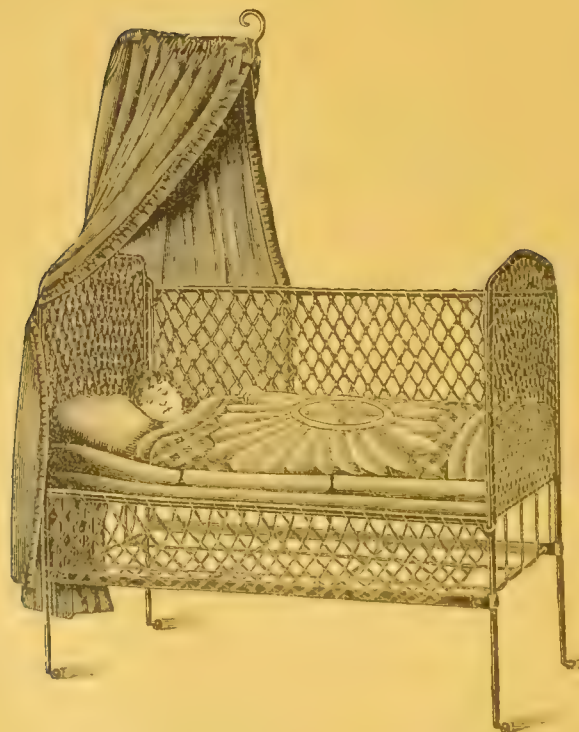


Fig. 15. The Steiner "reformed bed" for children.

stuffing of the beds — of the mattresses, pillows, and quilts — should be of wool or hair, as the material has to be enclosed in pervious cloth. Pervious cloth cannot be cleaned when it has a feather or down stuffing, apart from the worthlessness of the feathers themselves. A healthy bed should have no more to do with feathers than our day clothing. If feathers are ever introduced — in a quilt for instance — it must be very small and easy of ventilation. It is much better to leave down and feathers severely alone, and cover the feet with one or two blankets folded up. The reform in clothing has pointed out the way in which the bed reform must be careful to proceed. The material of which our bedding is made must be porous, flexible, and soft. Our skin belongs to the air, and our bed must not separate us from it. We get the warmth we need, and which is not supplied by a cotton knitted material (the usual covering in the Steiner bed), by using a loose stuffing of wool or camelhair. Wool is particularly good for stuffing quilts and bolsters. "The elasticity of loose wool," says Steiner, "beat into the form of wadding, is greater than that of knitted work; consequently, the latter is not able to press the wool together and deprive it of its great air-containing bulk." As to the Jäger bed, see under the heading of "Wool Cure" in the alphabetical section.

The thickness of the layer of wool must be determined according to the temperature and the weather, or the inclination, constitution, age, and condition of the individual. When wool is used for bed covering, the weight of the material does not cause any pressure or stimulation of the body. On the other hand, the generation and radiation of heat is properly regulated, and the circulation of air at the skin can go on uninterruptedly during sleep.

I must now bring my remarks on bedding to a close for the present, and I beg the reader to refer to the heading "Sleep" in the alphabetical part of the work, for further information, and to look up the word "Bed" in the Index for other particulars about it.

Now I must give a few rules as to sleep.

The first is that people should go to bed at a reasonable hour. The best time for adults is between 10 and 11. Two hours' sleep before midnight freshen and strengthen us much more than eight hours after midnight, or during the day.

You should never go to bed with a full stomach. The last meal should be two or three hours before going to bed. Stimulants — such as alcohol, coffee, and tea — should be avoided before retiring. A glass of plain water, or of sweetened water, taken just before going to bed, will be found to help one to sleep.

Do not sleep on the left side. Lying on the left side interferes with the normal action of the heart, and causes the digestive organs and the stomach to be pressed on by the liver. According to Professor Brünner, it is best to lie on your back with the head and shoulders elevated a little and the legs outstretched. On account of the better distribution of the blood, a horizontal position induces sleep more quickly than any other. And by lying on your back all the vegetative functions — breathing, circulation, etc. — can go on unimpeded during sleep.

Other people, however, find that lying on their back causes dreams, nightmare, and snoring (a rattling of the relaxed uvula in the stream of the breath), which leaves an itchy feeling in the throat on the following morning.

Although the right side is the one of most service to the sleeper, yet personal habits count for so much in the way of lying down during sleep, that it must really be left to each individual to choose the posture that he finds most comfortable and serviceable. Personally, for instance, I cannot sleep on my back, because it gives me a nightmare. I generally sleep on my right side: now and then, however, I turn over to the left side during my sleep, and finally roll back instinctively to the right.

Do not have your pillows too high, because it interferes with the circulation of the blood.

The bed should not be placed with the long side to the wall, but with the foot to the wall and the head free in the room. It is best to have the foot towards the south, so that the sleeper may have his head towards the north.

Never read in bed for the purpose of inducing sleep. Reading in bed injures the eyes, and the subject you have been reading will mix itself up with your dreams. Also avoid any great excitement — anger, fear, or excessive joy — before going to bed. Care and trouble are not good soporifics.

It must be neither too warm nor too cold in your bedroom. There is a very wide-spread but erroneous belief

that it is healthy to sleep cold, and so many a man who thinks his living-room not warm enough at 68° F. in winter, does not hesitate to spend from eight to ten hours in his bed-room at 50° F. and even less. A temperature of 55—62° F. is to be generally recommended for the bed-room.

Take care to have good, pure air in your bed-room. Let all the windows be open during the day-time (see the first chapter, on "The Causes of Disease"), and let plenty of air into the room during the night by opening one or more windows in the bed-room or an adjoining room, leaving the door open between the two. Let the body have plenty of fresh air by day and by night. That is the intention of nature — so up with your windows!

Choose for your bed-room the best room in your house — spacious, high, dry, and airy. Clear out of it all superfluous furniture and other articles, and do not keep your soiled linen in it. Do not have any strongly-smelling flowers, relics of meals, used commodes, etc., in your bed-room. It is unfortunately the case that the air is worse in the modern bed-room than in any other room in the house, and that it is often more conspicuous for dirt and decomposition. The moonlight may be kept out by curtains or blinds.

The floor of the bed-room should be cleaned every day after the beds are made. The bedding, especially blankets, quilts, etc., must also be aired every day.

A healthy man should not have too much sleep. To sleep long is bad for the health. Children and invalids, that is, people with weak nerves, may have longer sleep. A long, untroubled sleep is a good medicine for nerve trouble. A healthy man will find from six to eight hours quite enough. To rise early is good for the health, and lengthens life; therefore, get up as soon as you awake in the morning, and do not turn over on to the other side. "The morning hours are golden." Once you accustom yourself to getting up early, it is not difficult to persevere.

"Early to bed, and early to rise,  
Makes a man healthy, wealthy, and wise,"

as Franklin said. Hence you must go to bed early so as to have finished your sleep in good time.

"If you have not had your sleep out the day is lost. The light of heaven, which you otherwise greet anew each day, now dazzles you; the fresh wind of the morning, in which the breast expands with joyful breathing, now makes you



shiver. The noise of the awakening day, which would otherwise summon you fresh into the daily struggle for life, now makes you nervous, morose, and ill-tempered. You stumble over every stone, even over your own legs, in the street; and so you enter a public-house and get a 'pick-me-up,' because your machinery will not run very well of itself now, and you find it necessary to have a bitter, or another 'drop' before dinner. And so you fall into the vicious circle of sleeplessness and stimulants."

### 13. What should our Houses be like?

Whilst the inhabitant of a warmer climate can spend almost the whole year out in the street, where he derives the full advantage of air and light, and where, as is the case in the East, he can do all his business in bazaars and markets that are open to the air on every side, the northerner is compelled by his climatic conditions to spend the greater part of his life in enclosed rooms. Such, at least, is the lot of the artist, the scholar, the clerk, the craftsman, the ware-houseman, mechanic, etc.; there are very few avocations — like that of the farmer, the forester, or the soldier — that offer an exception.

The demands which modern life makes upon every man in point of education compel him to sit in musty school-rooms from his earliest years, and the majority are still condemned to spend their days in other "human stalls" after their escape from the school-room. There must be a curse on modern humanity that our famed civilization should involve such unhappy and unnatural consequences.

The vast majority of our fellow men cannot escape from this part of our social misery; they have to earn their daily bread by an occupation, generally a sedentary occupation, in their various "bread-winning establishments" — their shops, etc. On that account at least the most strenuous precautions should be taken to prevent the injury which is inevitably done by this detention in closed rooms from becoming a source of sickness and disease, by their unhealthy condition.

Man was intended by nature to be a creature of the air, not a house-dwelling animal. He should use his house merely for the purpose of sleeping in at night or as a protection against inclement weather. In our latitude we are also driven into the musty air of our rooms by the severity

of the winter. On the other hand, during spring, summer, and autumn, we ought to spend the whole day in the open air, whatever be the weather. Unfortunately, it is the privilege of a very few to be able to spend the greater part of the day in good fresh air, on account of the conditions and occupations we have mentioned. The "upper ten" also, whose chief occupation is the fingering of bank-notes — a work that does not occupy their whole time — are in the enviable condition of being able to enjoy the fresh air all day long whenever they like. As the idea of a rational way of life is gradually making its way even into the heads of the wealthy, they are using the privileges of their money to a great extent by undertaking long journeys and sea-voyages and mountaineering. Unfortunately these are the "favoured" minority. The vast majority, who must earn their bread "in the sweat of their brow" day after day, on the tread-mill of their shop and factory work, are cut off from the opportunity of living a natural life. Hence in the case of the majority it is the chief task of preventive hygiene to make the home and the workshop fit for human beings, and at least to minimise as far as possible the influence of the continual unnatural employment in enclosed rooms, which the actual condition of civilization has now rendered unavoidable.

We must, therefore, seek in the first place to give the air and light a free admission into our working, sleeping, and living rooms. (You will find further information about the effect of air and light on the body, dear reader, in the two chapters that deal with those subjects.)

The house must be dry. If the house is damp, the air in it is also damp, and its moisture is the source of many an illness (rheumatism, pains in the limbs, cold in the head, coughs, etc.). Damp air retards or prevents the circulation of material in the body by lessening the exhalation from the skin; later on it causes anæmia, poverty of the blood, debility, etc. If the house is both damp and cold, the evil effect is doubled. People should therefore avoid houses which have been built in the winter. Houses which look towards the north are cold, if not always damp.\*

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\* The following is a simple and practical recipe for lessening the moisture in a damp house: Take a strong iron vessel, and pour about a quart of spirits of wine into it — leaving the vessel only half full. To guard against any danger of fire, put the vessel of spirits into an earthen dish full of sand. After closing the doors and windows, light the spirits, remaining in the

Professor Reclam recommends uninterrupted heating by day and night to get rid of moisture in living and working rooms, and the opening of the window at night; in fact he recommends the use of a stove\* (see the illustration under "Heating," in the third part of this book). "Heating uninterruptedly by day and night by a good close stove is less expensive," he says, "than the common practice of relighting a fire every morning, because the fuel for the latter is dearer; the stove burns the cheapest kind of coal. The uninterrupted heating of two north rooms during the whole winter costs me about threepence per 24 hours."

As the walls remain warm always when the heating is continuous, there is another economical advantage in the need for a less quantity of fuel. But even if continuous heating by a stove were a little dearer than the interrupted heating by ordinary fires, there would still be a great gain, when we remember that it is warding off sickness and sparing us the time and money which illness always demands.

The house must be light. Hence in renting a house, see that there are plenty of light, sunny rooms in it. "Where the sun does not shine the doctor comes." Open the doors so that warm, sunny air may get into those rooms that are not directly open to the sun. If it gets too warm in a very sunny house in the height of summer, let the sunlight flood the room for at least one hour before drawing the blinds. Rollerblinds of thick grey linen are very good to keep off the rays of the sun. Choose a light colour for the walls of the rooms. Wall-papers, which are still generally used, have several unhealthy, poisonous colours (arsenic, for instance, which gives a beautiful green), which are used in making the pattern of the paper; they absorb evil smells and morbid matter, and gather a good deal of dust and dirt. Beetles are fond of getting behind wall-paper; and on damp walls paper favours the growth of mildew. Hence it is better to colour the walls, either with size or lime. That paper-hangings are regarded as the receptacles of morbid matter, bacteria, fungi, etc., is clear from the rules of hospitals and infirmaries, the walls of which are never papered, but colour-washed. School-rooms,

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room for precaution until it has burnt out, when the doors and windows may be opened again. By this simple process the atmosphere and the walls will be made quite dry.

\* For further particulars see under "Heating" and "Stoves," in the Index.

for the same reason, are not papered, but coloured. On account of the accumulation of the different effluvia from the scholars, the school-rooms, better called "human stalls," would be much more fruitful of disease than they are now if the walls were covered with paper.

In the next place, the house must be roomy or spacious. It is too difficult to maintain order and cleanliness in small houses, and rooms are too quickly filled with bad, consumed air. The largest rooms must be chosen as work-rooms and bed-rooms, because most time is spent in them.\* Those who are compelled by their limited means, or other unfavourable circumstances, to remain in small, narrow rooms should try to minimise the evils of it by plenty of ventilation. (See further in the chapter on "The Causes of Disease," and under "Ventilation," in the alphabetical section of the work). "In small rooms," says Reclam, "which are preferred by many people, the air is vitiated in the same way as in the neighbourhood of dung-hills, and those who live in them cannot escape a good deal of illness."

We must take care to secure a circulation of the air in every room that serves for our constant use, just as in regard to our clothing and bedding. In order to have a continuous ventilation, the upper part of the window must be always open. A piece of wood should be nailed or tied between the top of the frame and the sash, so that it may never be closed. Such a simple contrivance ensures a constant flow of air by day and night, and supplies better air even to the rooms below. During the day the lower part of the window should also be opened as much as possible, and from time to time the door opposite the window, so as to create a draught. For several hours a day at

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\* Unfortunately, it is just the reverse nowadays. In private houses the worst-situated rooms are chosen as living and sleeping rooms, and the best room becomes a "parlour" or drawing-room, and is turned into a furniture store for the sake of a few visitors who may drop in once in a few years. This false kind of life and desire to make a show before others with plenty of furniture in the "parlour" have to be purchased by living and sleeping in unhealthy, small, narrow, musty "holes" — in a word, at the price of one's health. As to living, and especially sleeping, in very low attics, the sanitary authorities should suppress it altogether. It is much to be hoped that we shall soon see a change, and that every father and mother will come to see that it is not the possession of a "parlour," but only health and contentment with one's condition that can make people happy. Therefore, dear reader, clear out your "best room," and put up your bed or that of your family in it. You will soon see the advantage to your health of such a change.



least — more, if not continually, in summer, and less in winter — every window in the house must be thrown open.\*

Dust is another enemy to deal with in enclosed rooms. It should be expelled, not only by sweeping and washing the floor and dusting the furniture, but also by beating the walls with dusters and blowing the dust off.

"In order to save time and labour in scrubbing boards," says Reclam, "and to keep moisture out of the house as much as possible, coat the floor with the following mixture: To a can of linoleum varnish add an ounce-and-a-half of 'seccative;' warm the mixture carefully in a pot about twice the size, without letting it boil (on account of the danger of fire), and lay it on the boards hot with a paint brush, or rub it in with a woollen rag. If it is done overnight it will be found dry in the morning. Repeat it day after day three or four times. Boards which are treated in this way do not stain, and easily keep clean if a wet cloth is passed over them once a week — for which the mop may be used."

The washing and scrubbing of unvarnished floors\*\* and the drying of clothes in living and bed rooms are to be blamed, because both are injurious to health. A room that has had its unvarnished floor scrubbed before mid-day must not be used again until the whole of the wet has disappeared from the boards and the crevices. To hasten the drying light a good fire and open the windows, although even then the room will scarcely be fit to live in the same day. But to begin scouring a room in the evening, as is so often done on summer evenings amongst the poor, and then go to bed in the damp room, is a piece of folly of the first order. Unfortunately, there are so many hysterical women of every rank, condition, and age with a mania for scrubbing, who cannot rest until they see the whole house under water.

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\* Factories, work and store rooms, meeting rooms, theatres, concert rooms, shops, offices, etc., should be aired during the night by leaving every window open. The ventilation of rooms that serve for edification — churches, for instance — usually leaves much to be desired. Hence the common saying, "I can't stand the air of a church," is not always merely a profane excuse for absenting oneself from public worship.

\*\* "The floor," says Professor Jäger, "must be as little as possible of rough, bare wood, because it has to be washed to keep it clean, and bare boards, having so much occasion to absorb evil smells as the floor has, are very dangerous to the health when they are wet."

It will not dawn upon them — and what woman, with all respect, my lady reader, does not know more about housekeeping than her husband and the doctor put together — that to run it over daily with a wet cloth keeps the floor cleaner than that constant “soaking” of it.

The drying of clothes in living rooms, which is so often done, especially in winter when there is a fire, is, unfortunately, very difficult to avoid in the poorer districts. Yet if the husband were to spend a little less on beer, whiskey, and tobacco, and the wife a little less on new clothes and hats, they could put by a nice little sum in the course of the year, and so take a better and healthier house, and not need to dry their clothes in their living and bed rooms. A healthy house is just as necessary as healthy food, clothing, and bedding. But people prefer to give their money to the doctor and chemist, or spend it on drink or superfluous clothing. They say in Germany: “Let your food be in accordance with your condition, your clothes be above your condition, and your dwelling below your condition” — and they act on that principle in England, too. But it is a false principle. A man should never be ashamed of his neediness, because that is a false shame. But most men try to deceive their fellows with regard to their real means by an exaggerated expenditure on dress. What is the use of trying to keep up appearances in this way when the truth is visible in every corner of their dwelling?

Health is closely related to contentment; finery and unmeaning dissipation and pleasure beget neither the one nor the other. “The man who is proud of his fine clothes,” says Reclam, “shows that he thinks more of them than he does of himself, and that he, therefore, thinks very little of himself.”

People should be proud to have an airy, healthy, roomy dwelling, and save as much as they can from fashions and such superfluities in order to pay the rent of a good house.

There is so much complaint nowadays about the wretched conditions of employment, but have you ever tried, dear reader, whether “the solution of the social question” does not depend mainly on yourself and on each one of your fellow-men? A natural life and a properly ordered economy are very closely related.

Suppose you only spend threepence or fourpence a day in alcoholic drink and tobacco — that already means the

round sum of five or six pounds a year. Save that! you give about twice that, perhaps, for the rent of your house: in large towns it is impossible to get light and healthy rooms for that sum. You will now be able to add two or three shillings to your rent-money, and so you can get a house or rooms in which you and your family can live in comfort. You not only save money in buying less beer and whiskey and tobacco, or none at all, but you live a more natural life in a healthy, dry dwelling, and so happiness and contentment will once more gladden your heart and the hearts of your family. So it is with everything else in modern civilized life. Every one, from the highest to the lowest, should apply himself most seriously to the breaking off of unnatural, superfluous, and unhealthy tastes. Apart from the spiritual force that is gained by overcoming oneself, strength, time, and money will be saved for the purpose of meeting the requirements of a natural and healthy life. In that way people will come a little nearer to "the solution of the social question." Every man must do what he can, by living a natural, simple, and temperate life, towards the removal of the unnatural conditions that prevail. The question of housing the working classes could be solved now with the co-operation of each individual.

But let us return from this digression into social problems to our proper theme.

Curtains, carpets, and stair-covers are excellent dust-catchers. They are best made out of pure wool. "This is not only a hygienic requirement," says Jäger, "but also an advantage with regard to the danger of fire, because woollen things not only catch fire less easily than stuff of vegetable fibre, but, which is the chief point, they go out when they are set on fire."

The furniture, if it is of wood, must be varnished and polished back and front, so that there must be no rough wood visible. According to Professor Jäger, rough wood absorbs bad smells on a change of temperature and moisture, and gives out a stench.

Books and papers, which are also usually made out of wood fibre, are bad for the air of the room for the same reason — they absorb bad smells, retain them, and then give out a strong stench. It is best to enclose them in a bookcase.

The air of the room is also frequently vitiated from

the floor underneath, even through the ceiling, which is thin and pervious in the jerry-built structures and model lodging-houses that are now erected.

Last, but not least, we must say a word of that notorious pollutor of the atmosphere, the closet. In some of the older houses and in the poorer districts it communicates an evil smell to the whole house. Such things are obvious breeding-places of epidemic and disease, and they ought not to be tolerated by the sanitary authorities. Where alteration is too difficult, if not impossible, the evil effect must be toned down by good ventilation. In new houses the closet is better constructed, and its walls are lime-washed, so as to keep the smell in the place and not let it spread.

It is true that the crowding of people into large towns, and the herding in streets and flats and model lodging-houses, and in damp gloomy courts and alleys, have very little to do with health and a natural way of living, as people in the towns rather poison each other with their effluvia of all kinds — from their bodies, clothes, beds, tools, machinery, etc. — and good light and air are scarcely to be had for love or money; nevertheless the question of fresh air is in a much more parlous condition in the country. The air may get in through a broken window or a door that has been accidentally left open, but otherwise the good peasant never dreams of ventilating his pestiferous cottage. It is only on account of his constant employment in the open air that he does not suffer more frequently from the evil effect on his system of the vitiated atmosphere of his rooms. Naturally, he sleeps with closed windows at night, often in a room that has served as a living room during the day. Hence it is no wonder that so much disease is found in the cottages of the peasantry; much of it could have been easily avoided with a little thought and good will. God grant that my book may do some good amongst the country people, and may help to free them from the hereditary, deeply rooted prejudice that air and ventilation are injurious in the home. The peasant has at his very door the medicine that the townsman cannot buy for love or money — air, light, and sun. May he learn to appreciate these healing powers and to make a rational use of them.



## 14. Work and Exercise.

In order to secure an unlimited enjoyment of health of mind and body, it is not enough to breathe only good and pure air, so as to obtain the necessary oxygen and get rid of the carbonic acid; it is not enough to supply your body only with the strictly necessary nourishment in the best possible form; it is not enough to have healthy clothing and bedding; but you must also make use of the strength which a natural mode of life has given you by a proportionate bodily and mental activity.

"Work sweetens life," says an old, but very true proverb: and there is another to the effect that "Idleness is the beginning of all vice." Idleness, or as we should say, insufficient exercise and work, is also generally the beginning of all disease. Work and exercise stimulate the circulation of substance in the body, and make a man hungry and healthy.

"Wherever a man lives under natural conditions," says Jäger, "the struggle for food and life involves as much bodily exercise and exertion as he needs to maintain his constitution properly." In civilized communities, however, we no longer find this natural condition; hence it is easy to understand that the unnatural state of not having sufficient exercise in the open air must be prejudicial to the health. As I said in the preceding chapter on "What should our Houses be like?" the majority of men are "condemned" to a sedentary occupation in enclosed rooms for the whole of life; even when an employment involves a certain amount of bodily exercise in the workshop, etc., this is not to be compared for a moment with work and exercise out in the fresh, pure air.

There is no doubt that useful activity has an important influence on our health of body and mind, that it is even closely connected with the weal or woe of our whole social fabric, and that work has always been regarded by true and judicious friends of humanity as a blessing and as a means for our moral advancement; yet we cannot deny that work is often abused, and often becomes only an instrument for ruining one's health and enslaving one's fellow men. This evil, however, must not be attributed to work itself, but to the frailty of human nature. "He alone lives who uses his strength," says the wise Seneca; and he who does his work

properly knows why he has been brought into existence. For nations and for each of their individual citizens a life of toil is the first duty. All would soon perish if no work were done.

On the other hand, the feverish modern struggle for daily bread causes certain irregularities in work, as I have already said; the work is either too long or too severe, or the necessary intervals for rest and recreation are either omitted altogether or they are too brief, or else the wretched conditions of employment (see the chapter on "The Sources of Disease") have an injurious effect on the health of the worker. Unfortunately many cannot withdraw themselves from the evils of their particular trade or employment, and so I give in the alphabetical (third) part of this work fuller particulars as to the way of overcoming, or at least moderating, this or that danger connected with one's work. Others, who are not exposed to any direct injury in their business, do not know how to work properly. The man who can take up alternately bodily and mental work in a reasonable way will be far more vigorous than the man who has to confine himself either to corporeal or to mental exertion. A monotonous work tires much more quickly than one that is more varied. As I said, there is an art of working properly which has to be learned. Our own generation is distinguished by a feverish amount of toiling, struggling, running after gold and profit. This morbid pressure has already produced much trouble and misery, caused much disease, brought great unhappiness to many fine abilities, which, had they been properly and sensibly directed, would have attained brilliant results.

"We cannot," says Dock, "sufficiently admonish those unhappy people whose sole aim is to become rich, and who press after their object with a feverish activity, who dream only of gold, of delusive honour and greatness, and so overstrain their body, their brain, and their nerves, that they at length give way, and the unfortunate people have nothing left but a diseased body and a shattered mind. For such persons work is not a blessing but a punishment."

Work, exercise, and rest are exceptionally important principles of health, that is, when we direct them in such a way that our mental and bodily powers are always evenly balanced and harmoniously developed.

It is only through ignorance of nature's laws, and of the

structure and functions of our organism, that so many people allow this irrational and injurious pressure of work; and it is an urgent necessity for such people to obtain at least enough knowledge as to what is good and what is bad for the body to protect themselves from further injury.\*

In the continual mutual influence of mind and body, a healthy mind acts just as beneficially on the body as a healthy body does on the mind. Hence, if a man's work is chiefly corporeal a certain amount of time should be devoted every day to the cultivation of the mind; and the mental worker must not neglect bodily exercise. Mental strain, or excessive brooding and reflection, causes disease of the cells of the brain. Hence a man must be temperate in his work. When he feels mentally exhausted, he should turn to some bodily occupation, or take a complete rest. So important an organ as the brain is richly supplied with blood, and the flow of blood to it has to increase in proportion to the vigour of its work. The purer our blood, the better will be the nourishment of the brain. The mental worker, therefore, must breathe plenty of fresh air through his open windows, or, better still, by exercise in the open air, walks in the garden, etc., and must eat pure, light food, in order to form plenty of pure blood in his body. If, on the contrary, the blood is impoverished for want of oxygen, if the removal of the carbonic acid is impeded, or if the products of combustion remain in the system, stoppages of the circulation are likely to occur, and cause much pain in the head and brain. In particular, parents and teachers should pay more attention to the development and care of the brain of the young, and should be careful to prevent too great a strain being put on it in the school hours; it is equally reprehensible to exercise the child's mental faculties too little or not at all.\*\*

On the brain, as the leading element of our body, depends the nervous system. Our nerves are the source of all our movements and feelings. In order to exercise their function promptly, the nerves need a temperature of 98° F., which we can only maintain as long as the circulation of substance is normal. But we can only keep the circulation in this normal condition by bodily work and exercise, by breathing plenty of oxygen, and getting rid of the products

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\* That is the chief aim the Author has before him in writing this book.

\*\* See under the heading "Brain," in the alphabetical part.

of combustion and assimilation; hence we can only maintain the proper temperature for the nerves by judicious exercise and work.

The sensitiveness of our nerves is much weakened and impeded by the presence of blood which contains much carbonic acid, and they work badly and finally refuse to act at all. Hence it is that it is so injurious to work in rooms that are full of bad air.

Idleness and inactivity also diminish the sensitiveness of the nerves by lessening the circulation of substance. On the other hand, a sustained severe exertion of the mind or body also lessens the sensitiveness of the nerves; a condition of fatigue sets in which can only be removed by recreation and rest. Excessive strain of either body or mind is severely punished by the complete exhaustion of the brain and the nerves that follows; this kind of exhaustion can only be relieved by a long rest from all work.\*

The influence of work, exercise, and rest on the action of the lungs, the circulation of the blood, and the activity of the heart, is of great importance. As you know, dear reader, your lungs have the important function of purifying the blood of carbonic acid, superfluous water, and other refuse of the body, and of supplying it with oxygen for that purpose.

Now the purification of the blood by the lungs is more thorough in proportion as we breathe more deeply in good, pure air. Work and exercise beget a greater need for oxygen; the more oxygen a man takes in, so much the more carbonic acid he gives out. When we take exercise or work in the open air, we are found, from the nature of the case, to breathe more deeply and thoroughly. That is a great advantage for the development both of our lungs and of our chest. It is possible to do marvels in the way of strengthening weak lungs by discreet lung-gymnastics, and at the same time to increase considerably the circulation of substance.

For patients who are troubled with disorders of the circulation, bad combinations of humours, poverty of the blood, anæmia, and nervous debility, who always feel chilly in consequence of an improper distribution of the blood, and have cold feet, cold hands, and a heated head, judicious

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\* See further, in the alphabetical part under "Nerves."



bodily work or exercise, reasonably adapted to their strength, is a valuable remedy. Exercise accelerates the circulation of the blood and gives a wholesome stimulus to the action of the heart, which drives the blood to every part of the system. It is of extreme importance that the heart act regularly, because there can be no proper nourishment of the body without a proper distribution of the blood.

On the other hand, excessive bodily exertion also deranges the circulation of the blood and the action of the heart. You very soon notice this in lifting heavy loads, for instance, in protracted dancing and swimming, in gymnastic performances without proper and necessary intervals of rest, and in ascending stairs and mountains too rapidly.\*

The muscles, or muscular system, play an important part in our work and exercise. According to Professor Hermann, each muscle is made up of a bundle of slender fibres, called "muscular elements." It takes from 90,000 to 100,000 of these fibres to make a muscle of the thickness of a finger. When a number of muscles lie together in the system, and unite their action to produce a certain movement, they are said to form a "muscular group." The muscles or muscular elements are determined to action by the will through the brain, with a concomitant action of the motor nerves. In many actions — for instance, in chopping wood, thrashing, hammering, practising gymnastics, and swimming, as well as in walking and running — quite a number of muscles are involved. A continuous supply of good blood, containing plenty of oxygen, is necessary for the development of sound, strong muscles. After every exertion the muscles need rest. They are enfeebled by straining them too much; in fact, it may lead to a complete paralysis of them. In proportion as they are reasonably exercised and given a corresponding rest after their use, they become firmer, stronger, and more fleshy. The less they are used, the thinner and flabbier they become, and in the end they become fatty. They are the proper organs of exercise and work. Our natural method of healing, for instance, necessitates the exercises of hygienic gymnastics for the purpose of strengthening weak muscles and curing a great variety of muscular ailments, and even of bringing new strength and life to the diseased parts in cases of muscular paralysis.

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\* See further, under "Lungs," "Circulation of the Blood," and "Heart," in the alphabetical part.

A portion of the renewal of the material of the body takes place in the muscles. In consequence of their activity carbonic acid is produced in them, and this has to be passed into the blood and removed from the system by breathing and by the exhalation from the skin. The removal of carbonic acid from the muscles is more vigorous during work and exercise than during repose.\*

As you see, dear reader, in everything that pertains to our bodily welfare there is always the question of bringing about a free, unimpeded circulation of the substance of the body. Unimpeded circulation means health: restricted circulation means sickness. Oxygen and suitable food must go into the body: carbonic acid, the products of fatigue and decomposition, the residue of the tissues, used-up material, and so forth, must be expelled from it. That is the great secret of securing health and avoiding disease!

"Gymnastic exercises or jumping about in the open air," says Dock, "is a most important condition of the bodily and mental growth of our children and young people."

The games of growing children and youths, which are much more than a mere recreation and a pleasant occupation for leisure hours, are an indispensable means of forming and training both body and mind. As soon as the child has learned to control his organs of movement, the desire to run and jump about comes on him with all the force of a natural instinct. The child does not walk when he is left to himself in the open air — he runs. It is a trouble to him to be made to walk — a pleasure to run until he is out of breath. The instinct of movement must be satisfied like the feelings of hunger and thirst; and that of itself is a proof that we are carrying out an important development of the body in this. In point of fact, frequent and brisk exercise of the body has a most valuable effect on the action of very different organs, especially on the lungs, the full development of which depends on such exertions. How necessary it is to develop this organ is clear from the physiological law that organs, or parts of organs, degenerate in their growth when they are kept long in idleness, whereas a certain amount of work is a necessary condition for the maintenance of the organ in full vigour. Hence the occasional employment of all parts of the lungs, even of those that are usually but little exercised, is

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\* See further under "Muscles," in the alphabetical part.

necessary if they are to be vigorous and strong. This is especially applicable to the points, or apices, of the lungs, which are generally only moderately involved in our breathing; an insufficient exercise of them helps the outbreak of one of the most destructive of diseases — pulmonary consumption. In order to bring the whole of the lungs into action in our breathing, they must be exerted to the limit of their capacity, and this is secured by an extensive exercise of the muscles. The most natural way to secure it is by running quickly, because running throws all the large muscles into action without straining any of them, as may happen in feats of strength. By running for a few minutes, you can increase the rate of breathing to twelve or thirteen times what it is when we are resting; no other form of exercise can do that. When the highest limit is reached, if you continue to run the lungs refuse to act — you get out of breath. The runner stops — he cannot continue. Hence a natural limit is put to the highest exertion of the lungs, and over-exertion is avoided. If the runner takes a rest his breathlessness soon disappears, and no harm is done.

Work and exercise are the best means of maintaining our system at its normal temperature of  $98.6^{\circ}$  F.; the duty of seeing that the supply of heat does not run down belongs to the muscles. Notice, then, dear reader, that it is only when we take proper exercise or work, that we can keep up the inherent heat of our body.

That, in fine, our skin also profits by our exercise and work will be clear to you, dear reader, because you have already seen what a beneficial influence they have on all our other organs and their functions. Vigorous exercise considerably increases the exhalation from the skin, and consequently the removal of carbonic acid and the residue of the tissues from the system; and this is very important for your health, as you have seen in the chapter on "The Renewal of Substance." The skin, moreover, is a breathing apparatus and an organ for regulating our temperature, and the less it is shut off from the air by impervious clothing during exercise and work, the stronger, purer, and healthier it becomes, and the more vigorously it acts.

As our bones also are subject to the law of renewal of substance, work and exercise have a similar important influence on their formation and development. Look at the strength of the bones of, for instance, smiths, butchers,

bakers, joiners, athletes, masons, troopers, peasants, soldiers, etc., and at the weakness of the bones of people who take little or no bodily exercise — who have been brought up stay-at-homes, and have remained so throughout life! Naturally, that kind of work and exercise is best for the bones which gives equal employment to them all. Hygienic athletic exercises accomplish this, as a rule; and there are certain occupations that also meet this requirement.

I have now described the effect of work and exercise on your body, dear reader, or on its organs and their functions, though what I have told you is very far indeed from exhausting the extremely important question of work and exercise. You will find further information as to different kinds of exercise — active and passive — and the various movements of hygienic gymnastics (Swedish gymnastics), in the second part of this book.

I shall now briefly describe the influence of exercise and work on sleep, digestion, and the life of the soul.

Work and sleep are related to each other as cause and effect. "Sleep is as useless without the mainspring of work," says Dr. Sonderegger, "as a pendulum without the works of the clock." Judicious and healthy work alone can produce sound sleep. Work causes fatigue, and fatigue needs to be removed by sleep.

That digestion and appetite are promoted by work and exercise does not need much proof. Work accelerates the circulation of substance in the body; the discharge of used-up material creates a longing for more material, or for the taking of food, which expresses itself in the feelings of hunger and thirst. Our excretory organs — the lungs, skin, intestines, and kidneys — are stimulated as a consequence of work and exercise, and this leads to an increased discharge of rejected material. I need not tell you much about that, dear reader. You have yourself experienced often enough the effect of great bodily exertion — a walk, etc. — on your appetite and digestion and the working of your bowels. You have nothing to say against it, and I trust you will not cease to strengthen and maintain your digestion by this cheap and simple expedient of plenty of exercise in the open air.

The consciousness of having faithfully acquitted oneself of an obligation — for such work really is — creates a feeling of peace and contentment in well-ordered minds, of



satisfaction with oneself, one's surroundings, and one's condition. On that account, dear reader, do not avoid the duty of work, even when, for some reason or other, you find it difficult, or because you dislike it. The feeling of having done your duty in unpleasant and disagreeable circumstances, of having laboured for yourself, your family, and your fellows, will greatly increase your spiritual strength; you will feel peaceful and happy. And this psychic or spiritual state, this rest of the emotions, has an exceptionally good influence on your bodily welfare. That nervous malady, hysteria, that is spreading so much amongst women of all conditions, is largely due to the influence of discontented emotion; and this, in its turn, is generally caused by inactivity and "busy idleness."

Very truly has Dr. Chalmers said: "Heaven is not a place, but a rest of the emotions."

## 15. Recreation and Rest.

When our body has been engaged either in mental or corporeal work for some time, it begins to long for rest, for the purpose of making up the loss of material and strength. Hence it is not incorrect to compare our organism to a factory, in which a number of machines are at work together producing material.\* There are a number of apparatus — that is, organs — in the interior of our body, especially in the cavities of the breast and the abdomen, which work together harmoniously for the production of a fabric, in a certain sense, in the shape of our health of body and soul. And just as the machines in the factory need a rest from time to time, to prevent them from being worn away too quickly, so in the case of our human organs, it is imperatively necessary that they be relaxed after a certain run of activity. There is only this difference, that, in the case of our bodily instruments, it is not a complete rest but a certain slackening of their functions. Complete rest of all our faculties of body and soul would mean death.

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\* The human body may well be compared to a factory or workshop, in the sense that the food represents the fuel, the mouth and gullet the furnace-mouth, the stomach the body of the furnace, the kidneys and liver the ash-grating, and the bowels the ash-pit. The lungs may be compared to the flues, the heat is the pulsometer, and the nerves represent the electrical means of communication between the rooms of the factory.

If we do not wish to suffer severe injury to health we have from time to time to satisfy this craving for rest, which makes itself felt as keenly as the instinctive craving for food, exercise, and so on. Rest is a recreation, and even a change of occupation is a recreation. Whether we are engaged in bodily or in mental work, it is almost always necessary to take up one thing at a time for a longer or shorter period. All monotony is bad for the system; we need a certain amount of variety in our employment. According to the nature of our occupation — when, for instance, we have to continue standing or sitting — we feel a desire for change, and we seek to gratify it by a change of posture or by exercise. Continuous mental preoccupation with one and the same object is equally fatiguing, so we change to another object, or we turn to bodily work. The man who is compelled to work the whole day long in one room will strengthen and refresh both mind and body by going into another room — since he thus breathes another atmosphere — or, which is still better, by taking exercise in the open air. It is always a recreation for us to change our surroundings. The morbid influence of prisons, penitentiaries, reformatories, etc., on their inhabitants, is largely due to the monotony of the life and the impossibility of changing their surroundings.

Professor Gustav Jäger, M. D., makes the following interesting remarks: "When anyone has remained for some time in the enclosed atmosphere of a room he finds it stimulating to go out into the open air. That is not merely because the air of the room is bad and the air outside good, as is seen in the reverse case: when a man has spent a whole day, or several continuous days, as in war or manœuvres, under the open sky, he is glad to get into the foulest den, because it is a change, quite enough to turn the scale. During a walking tour one can easily prove the point in this way: if you have been long in the open country you are glad to meet with woods, whereas if you have been going through thick woods for hours together, it is refreshing to emerge into the open country."

"These simple observations should suffice to make us pay attention to change of air as a source of recreation; a daily walk has long been recognized to be a necessity for the man who works at home. Only you must not suppose that is enough to maintain a man in full vigour. The

system has a remarkable capacity for accustoming itself even to changes, when they come to be regular or rythmical, and this means a lowering of one's vital energy. A "man of habit" is not always a man of great vigour and health, but sometimes one with diminished energy. Hence we need not say that a regular daily walk is not enough; we must add to the daily change of air, a more generous one every week (on Sundays), and finally a holiday once every six months, or at least once a year. The better the holiday, the fresher you will be in body and mind."

We must praise as a great progress in this direction the school and congregational excursions in the summer, convalescent homes and sanatoria on the mountains and at the sea-side, "fresh-air" funds for poor children, etc., which offer to so many nowadays an opportunity of a change of air for the re-establishment of their health.

How much good is done by the holiday-homes and sea-side camps for the poorer children of the towns has been well described recently by a Leipzig teacher. "In every large town," he says, "there are marrowless children of sickly growth. The tender feelings of the child, moreover, suffer under the conditions of life in a large town. Hence it is the aim of the summer camps and homes to strengthen them in body and mind. The sea and the woods, good food and kind treatment, exercise in pure air and recreating games, will restore their health. Many children learn for the first time during these holidays to eat good, properly prepared food, and to take long walks, and thus they increase their weight. And we must not fail to appreciate the moral and spiritual influence of the holiday, and the training in cleanliness. The lesson of the woods and meadows does its part also, widening the horizon of the child's mind. Many a child that has been exposed to all the influences of street life has been morally re-established in the calmness of the mountain scenery. Healthy children incline naturally to what is good. To be healthy and to be good are as closely connected as to be good and to be contented."

The Sunday rest is of the utmost importance for all; it is established by state authority, though there are many tradespeople who are opposed to Sunday legislation — whether rightly or wrongly we shall not stop to consider. Quite apart from the religious regulations and customs which set aside the Sunday, the seventh day in the story of creation,

as a day of rest, we know that our capacity for work consists in a kind of elastic force that only holds out for six days, in the opinion of physiologists, and is relaxed on the seventh day, when it must regain its strength for the work of the next six days. The Sunday rest sustains the working force, the duration of life, and the health of men and of the working animals.

The following true story is not without interest: "Before railways came into existence great freight-waggons had to be drawn hundreds of miles, and the vehicles were often ten or twelve weeks in succession on the road; hence the defenders and the opponents of resting on Sunday came to the following agreement to test the question. Two heavy waggons, with equal guidance, load, and draught, were to start out on the same journey one Monday morning; one teamster was to rest with his horses every Sunday, the other was to continue his journey. The two waggons started out, and at length reached the end of the journey. And what was the result?

With the waggons which preceded the railways only a certain stretch of road could be covered at a time, up to a certain inn, where the team had to rest and feed; about 20 miles was a day's journey at that time. The teamster who was to continue his journey on Sunday — let us call him "the enemy of Sunday" to save time — got 15 or 20 miles ahead of "the friend of Sunday" on the first Sunday, as the latter rested with his horses on that day. And so it went on until the sixth week, when the "friend of Sunday" with his sleek, well-rested horses caught up the "enemy of Sunday," whose beasts were jaded, weakened, and done up. So the friend of Sunday won the race.

The moral of this little story is quite obvious.

Dr. Warren says: "As far as my experience goes, I have always found that people who are in the habit of avoiding all kinds of secular work and care on Sundays are capable of the best work during the week. I am convinced that they do more and better work in six days than they would do if they worked for seven."

Dr. Farre, another English physician, said in a speech in parliament on the question of determining the hours of work in factories: "I regard Sunday as an indispensable day of rest, in which the inherent strength of the body is renewed and re-established. Once that strength is lost no medicine



can restore it. It is true that the night's rest renews our strength to some extent, but not sufficiently. Hence Divine Providence has appointed one day in seven to be a day of rest and a supplement to the night's rest, in order to completely restore the exhausted strength. It is true that the evil of irregular, never-resting work is not felt so quickly in the case of man as in the case of the animals, but he breaks down all the sooner in the end. The appointment of a day of rest after six days of labour is a natural necessity, not a voluntary enactment. The human organism is so constructed that it needs one day in every seven for rest from all mental and corporeal work."

Unfortunately, in our present unnatural conditions, there are still many kinds of employment which allow little or no rest on Sundays. Such are the postal, telegraphic, railway, tram, and 'bus services, the duties of publicans, servants, barmaids, and so forth; it is a pressing necessity on the ground of health that they should have another day in the week free for rest and recreation. A great many of them have only a day once a fortnight, and that is altogether insufficient. Overwork exacts a bitter penalty; it is no wonder that Sunday-workers generally lose their strength and intelligence by their fortieth year (which should be the prime of life). Insurance doctors can tell how many have become incapable of work and of supporting themselves through overwork, and now are without an income. In the vast majority of cases the sufferers are the victims of over-exertion in the public service or in private business — over-exertion which may be traced to a neglect of the Sunday rest for a number of years.

The average time for daily employment in our factories and various industries — taking off an hour or two for meals — is about ten hours. For women it is rather less. Children under the age of twelve are not allowed to work more than four hours a day, and are not allowed to work at night. Young people under sixteen cannot be employed more than eight hours per day.

There is generally an hour's rest at midday, and sometimes half-an-hour for tea in the afternoon, or, if the work is from 6 to 6, half-an-hour for breakfast in the morning.

"The best division of the day would be to give eight hours to work — to vigorous, tense work — with a full appli-

cation of all our strength of mind and body — eight hours to lighter occupation (reading, etc.) and recreation (walking, swimming, cricket, foot-ball, etc.), and eight to sleep. We have all to devote the greater part of the day to work. That should make us more careful to use our recreation-time properly, and to steal nothing from our nightly rest (in well-ventilated rooms).”

Every worker, from the cabinet-minister to the daily labourer, must live as far as possible away from the place of his employment, so that he may be compelled to take a good walk or ride in the fresh air every morning and evening, and thus to brace up his system. All technical workers — whether they are employed in factories, or in home-work — should live outside the town, in the nearest village; they will find it cheaper, and they will then generally be able to have a garden, which will not only lessen the cost of their living, by growing vegetables, but will give them an opportunity of promoting their health and strength by working in the open air.

To leave off work earlier during the week, especially on Saturdays, is no substitute for the Sunday's rest. Dr. Paul Niemeyer relates that, during his long connection with the Leipzig “Workers’ Association,” which had several thousand members in the time of the eminent hygienist, he had plenty of opportunities of seeing that not much was to be done with the workman who finished his work at six o'clock. “After all I saw there,” says Niemeyer, in his work, “The Sunday rest,” which won an award, “I concluded that it would be much better for him to work another hour, and then take a light meal and go to bed. On summer evenings he should be let off an hour earlier for a bath, and on Sundays should have full leisure and liberty to seek what company he liked at home and abroad.”

“Against the practice of leaving off work early,” he says again, “and against evening gatherings at a third place, the physician must earnestly object the circumstance that the time thus given is generally spent in the public-houses — that is, in places, which, filled with tobacco smoke as they are, provoke a thirst for beer, prevent the exhalation from the skin, and inflict precisely the same injury on those present as the enclosed workshop did. Even thoughtful men often fail to appreciate the fatal effect of tobacco smoke on the blood and nerves, because they are themselves stupefied by it.”

Such is the opinion of Dr. Niemeyer. The solution of the problem of complete rest on Sundays is very difficult; an absolute, universal rest on Sundays is impossible, because the service of the sick, domestic duties, the necessity of traffic, etc., prevent it of themselves. Yet there remains the necessity of resting on the seventh day, and it is a matter of obligation for every man to be faithful to a rule that is urged by all our moral, social, and hygienic interests.

The best form of recreation, and the most natural state of rest, is sleep. It is the repose of the brain and the nerves. A short sleep of even a few minutes often drives away fatigue and exhaustion, and refreshes and strengthens a man as if by magic; whereas a longer sleep often gives no refreshment. How truly has the poet said that "no created mind can penetrate into the secrets of nature!" The life process that goes on in the interior of our body during sleep is just as unintelligible and mysterious to us in some respects as many of the processes that continue in it when we are awake.

This much, however, we do know — that there is an important difference between our waking and our sleeping condition with regard to the taking in of oxygen and the discharge of carbonic acid by the skin and lungs. During the day less oxygen is taken in than during the night; during the night less carbonic acid is given off than during the day. The researches of Professors Voit and von Pettenkofer have proved this. Partly in consequence of the food taken, work, and exercise, the carbonic acid removed during the day is out of proportion to the oxygen received in the same time; during the night, on the other hand, the proportion of oxygen taken in is greater than that of the carbonic acid given out. The oxygen that is stored up during the night is then used in forming carbonic acid on the following day.

Similar results have been obtained by experiments of resting during the day; just as happens during the night, a stock of oxygen is laid by in the system, which is afterwards converted into carbonic acid during work and exercise.

From the physiological point of view these inquiries are of the utmost importance. They not only show the necessity of sleep at night, but also of rest during the day, and the imperative need of a full day's rest once in every six days — that is, on the Sabbath.

Rest is as absolutely necessary for the health of mind and body as food, exercise, air, and light.

"Work, temperance, and rest  
Of all physicians are the best."

## 16. Hardening and Enervation.

As a rule people have a wrong idea of "hardening" — an idea which is calculated to do a great deal of harm; they generally conceive it to be merely an inuring of oneself to cold.

This idea is entirely wrong. By hardening we must understand a successful resistance against morbid influences; hence a mode of life "hardens" when it fulfils the conditions which develop the body's power of resistance, and endow it, in professional language, with an "immunity" from disease (that is, a privilege, an exemption, an insensitiveness).

The materials which chiefly compose our organism are — albumen, fat, and water. Albumen is the foundation of all its living parts — the nerves, the blood, the muscles, etc. Water and fat, though indispensable, are subsidiary elements. When these three ingredients are found in their proper proportions in the system the activity of the body is normal and healthy. The more albuminous substance the animal body contains, the more vigorous and healthy it is. If, on the other hand, it contains too large a proportion of water and fat, its energy and power of resisting disease are lessened (Jäger).

The sensitiveness or "irritability" of the nerves and muscles is closely connected with this proper distribution of the living substance of the body. And on the irritability of the nervous and muscular systems depends the mobility, or moving capacity, of the body; on the nervous system, in particular, depends the power of the mind. Even what is called the extensibility or elasticity of our skeleton and its several elements — the sinews, ligaments, blood-vessels, etc. — plays a very important part in keeping up the normal activity of the body. As soon as the flexibility and firmness of our framework are diminished, our organism loses in vigour and power of resistance.

Insufficient exercise, idleness, voluptuousness, monotony, and other defects in food, impeded circulation of substance,



neglect of the skin, wrong heating, and enervating clothing and bedding, continuance in bad air, much smoking, physic, and many other things cause — more or less rapidly, according to the individual constitution — an alteration of the chemical proportions (albumen, fat, and water) and of the physical properties (the irritability of the nerves and muscles and the elasticity of the skeleton) of the substance of the body; and this condition of departure from the normal proportions is called “enervation.”

In order to cure this state of enervation — for in the unnatural conditions of modern life we are all more or less enervated or degenerate — it is necessary to effect a change in the proportions of the component parts of the system, in other words, to increase the proportion of albumen and reduce that of water and fat. It is a question, then, of ridding the body of a certain amount of water and fat, and this is what we mean by “hardening” the system.

“It has been determined by accurate experiments,” says Jäger, “that stout people have considerably less blood than thin, and so it is quite wrong to call a fat man “full-blooded;” on the contrary he suffers from poverty of blood, and that is a disease in itself . . . With regard to capacity for work, it is well known that poor-blooded people can do less than full-blooded, because the capacity of an organ depends on the richness of its supply of blood.”

When there is too much water in the body, it is seen first of all by an increase of the quantity of water in the blood. This means poverty of the blood, and consequently a decrease in the vigour and capacity of the whole system, which is badly nourished and filled with too much water. The irritability of those special vital elements, our nerves, as well as that of the muscles, and the general elasticity of the organism are also, in virtue of physiological laws, sensibly diminished.

If then, you want to harden your constitution, dear reader, you must first of all devote your attention to increasing the circulation of material in your body, and breathe plenty of good, pure air, so as not only to permit, but to intensify, the combustive process; in that way your fat will be lessened (burned) and the superfluous water from your tissues will be removed by your excretory organs (the bowels, kidneys, and skin).

Therefore, keep your skin clean (see under the heading

"Care of the Skin," in the Index), and try to harden your body by promoting a free perspiration by athletic and gymnastic exercises in the open air (cycling, rowing, cricket, running, etc.); by porous clothing and bedding, which will give a free passage to the exhalation, and therefore the moisture, arising from your skin; by eating food which is rich in albumen; and, in general by a kind of life that will reduce the proportion of fat and water in your system. Hardening is the same thing as creating force to resist morbid influences; it affords you protection against disease and epidemic by ridding the body of the germs of disease; it helps you to bear trouble, hardship, and suffering more lightly — for it is synonymous with health, just as enervation is the same thing as disease. By hardening you get a firm, compact flesh, rich in albumen and poor in fat and water, and, feeling a greater mental power through your bodily improvement, you will be able to make such progress in your profession or business as you found impossible in your former enervated condition.

Only be moderate, and do not rush into extremes. The care of one's health does not demand great exertion. The process of hardening can never be forced, but can only be done gradually and prudently.\*

## 17. How shall we Harden our Children?

One of the most important questions in life is the above — "How must we harden our children?" For, according to the old sayings, "The boy is father to the man," and "Train up a child in the way it should walk," it is best to begin to harden our children in their early years. They will be grateful to us afterwards for doing so; they will be stronger and more energetic in body and mind throughout life, and able to bear great exertions without a constant anxiety about their "delicate health." A rational hardening affords our children the best protection against the dangers of chill and infection that are so much dreaded.

Colds and chills are extremely common. There are many who laugh at this, and declare there is no such thing as a cold.

There certainly are such ailments as colds and chills,

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\* For further information see under "Care of the Skin" in the Index.

though there is no need to be over-anxious about catching cold. The cooling of the skin does undoubtedly confine the products of combustion within the body, and these may, according to the quantity retained and their poisonous character (see the chapter on "What shall we Wear?"), cause a more or less serious derangement of the health. But it is really the foreign matter, or self-poisonous, morbid matter already stored up in the organism, that occasions this kind of ailment. This foreign matter is thrown into a state of fermentation through the products of combustion that are kept back by the skin, and it is in this way that the "cold" — or a sort of infectious disease — is produced. Hence people must be very careful to conduct the hardening of children with tact and moderation; they must increase the treatment gradually,\* according to the age and constitution of the children, so as not to spoil the effect of it by causing a cold or by provoking too violent a crisis.\*\*

It becomes easier to harden children as their age increases. Babies and very small children cannot be hardened although they may be strengthened by seeing that they have reformed clothes and bedding, and plenty of good, pure, warm, air to breathe. Summer is the best time for treatment; autumn and spring come next; winter is the least suitable for the hardening process.

Statistics show that the mortality of children reaches a high point twice during the year. One is in the summer, when a good many children die from the exhaustion of diarrhœa, etc.; the other is in the winter, when the children die of diseases of the respiratory organs and different kinds of catarrh.

During the summer in the large towns more children die amongst the poor than amongst the wealthier classes; in the winter it is just the reverse. The rich lose more children than the poor in winter-time.

It is said — whether rightly or wrongly we shall not consider here — that the children of the rich are softer or more effeminate. The peasant-woman says that "children and young turkeys must be kept warm."

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\* The same caution applies to the hardening of adults.

\*\* An acute illness of that kind is really a healing process. The body was not healthy before the illness appeared, although there was no sign of disease. Hence the acute illness must be regarded as a crisis in a process of recovery.

It is true that the mothers of the agricultural and the poorer classes have no idea of hardening their children. They keep them warm, at night warming them in bed with their own bodies; and if ever they do take them out in frosty weather, the poor children are so wrapped up that one fears the danger of suffocation.

Professor Ernst Brücke, M.D., writes as follows in a book that is well worth reading, entitled "How can we protect the Life and the Health of our Children?":

"Let us consider the way in which the well-to-do mother sends her baby out for an airing in the winter. It is carefully wrapped up about the body, but has only a transparent veil over its face; its dear little face must be left visible, and it must get a breath of the pure fresh air. Yes, the good fresh air! It is just this that the child cannot breathe unless it is warm, and this warming cannot take place under the thin veil so well as under the rags which the beggar-woman wraps about the head and face of her baby."

"The general public have very wrong ideas about the way in which children can stand wintry weather. Whenever the temperature falls below the freezing point, the air becomes more dangerous the drier and colder it is; it does not matter in the least whether the sunshine warms their skin or not. The cold dry air directly irritates the mucous lining of the respiratory organs, and is apt to cause catarrhal inflammation. This is more dangerous the smaller the infant is, on account of the narrowness of the tubes through which the air passes. What is called damp-cold weather is much less to be feared, provided the temperature is above freezing point; whether it rains or not does not matter, if the child is protected from the rain. Fog, however, may be very injurious, and the more so in proportion to the lowness of the temperature."

Summer, as I said above, is the best and most suitable time for hardening children. On the one hand, the rules of the treatment may be applied with less risk; and on the other hand the child can be exposed to the chief element in the process -- the air -- more frequently and for a longer time. During the winter the children can only be taken into the fresh air, as a rule, for a short time, and sometimes must remain indoors for a whole week. It is easier to harden children in autumn than in spring, because they will have become inured to the air during the summer, whereas in



winter they will have been exposed to the enervating influence of the air of a room.

The first and most important means of hardening children (and adults, too) is to keep them out in the pure, open air, containing plenty of oxygen. Children must not be taken into cooler rooms except when the sun is intensely hot — and then the rooms must not on any account be cellar-like places, as cold as ice.

It is a great pity that it cannot be arranged to give children their lessons in the open air — in open halls — during the summer. What an immense advantage that would be for them both in body and mind!

The second place must be given to porous clothing and bedding. Both of them are most important means of hardening, since they do not interfere with the exhalation of the steam from the skin and the circulation of air at the skin, and they regulate the production of heat and its radiation from the skin.

Another important point in the question of hardening is a rational care of the skin by washing and bathing. Unfortunately, cleanliness of the skin is a hygienic necessity that generally receives far too little attention, in adults as well as in children. I shall treat more fully of "The Care of the Skin, and the Bath; in Health and in Sickness," in the following chapter: for the present I shall confine myself to a few essential points.

A proper treatment of the skin is a means, not only of preventing a good deal of illness, but also of curing many diseases that have already broken out. After the lungs, the stomach, and the intestines, the skin is the chief organ for supplying the system with the requisite materials, and removing waste and injurious matter from it; yet, as Hufeland very justly says, thousands of people take great care of the skin of their horse, but none whatever of their own. And our skin needs so little trouble; it only needs washing or bathing, if possible every day.

Newly-born infants are bathed, as is well known, in water of a temperature of about 95° F.; and this temperature must be maintained for the bath during infancy.\* In the

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\* Many hydropathic doctors recommend lowering the temperature of the bath-water one degree in the second week after birth and two degrees in the third week. I can only endorse this advice in cases where the child is only bathed for a very short time — say two or three minutes instead of four or five; but I cannot generally recommend the practice.

winter the child should be bathed only for a few (four or five) minutes in a warm room, and should be wrapped in a well-warmed towel as soon as it is taken out of the water. It must be dried, without rubbing, in the most careful manner. This bath is merely for the purpose of cleaning, not hardening; there is no intention either of taking warmth from the child or giving it warmth in such baths. Hence it is wrong, of course, to leave the child long in the water; its tender outer skin, or epidermis, may be injured. This epidermis is so fine and tender and sensitive, that it must be handled with the utmost carefulness in drying. Even in later months children must not be allowed to remain sitting in the bath for a long time, just for pleasure. You injure the child by prolonging the enervating effect of the bath. No healthy child is strengthened by a warm bath.

It is useless to bathe children more than once a day. When the child is several months old lukewarm water may be used for washing it. Care must be taken, however, to protect it from catching cold. With children that are born in the autumn, and so are eight to ten months old at the beginning of the following summer, it is quite safe in hot weather to lower the temperature of the water gradually to 86° F., and, in fact, having regard to the constitution of the child and the temperature of the air, and also proportionately lessening the time of bathing (two to one-and-a-half minutes), one may prudently lower it to 82° F. But I cannot recommend the latter in every case; I must strongly urge parents to be very careful. If the child's skin does not recover its former warmth immediately after the bath, or if it begins to sneeze, the temperature of the water is too low. These experiments in the summer-time must, of course, not be tried on children who were born during the preceding winter or spring.

These cooler baths, under 95° F., are only for the purpose of relieving the children, who suffer a good deal from the heat of the sun, of their heat in a prudent manner. They are not for the purpose of hardening; as I have said before, we cannot harden young infants. **Hardening with cool, not cold, water must not be attempted until the child begins to run.** Then the child may also be trained to run barefoot, which is also an excellent means of hardening.

With a view to hardening them, the various parts of the child's body must be washed in the following manner: The

first day wash the hands and arms; the next day the face (provided there be no catarrh of the eyes, which would necessitate washing with warmer water), the legs, and the feet; the third day the throat, neck, back, and buttocks; the fourth day the breast and belly; and then begin over again from the beginning. Hands and face may be washed in cool water every day as soon as they are inured to it, but the other parts of the body must be taken on different days, as above.\*

The water that is used for washing must be cool, that is to say, it must have been standing in the room from 16 to 24 hours before it is used. Warm water must not be added to it. A bath of this kind, only to be given to the child in summer, is not so much for the purpose of relieving it of superfluous warmth as of gradually hardening its various members against the cold. If, although the bath is being carefully given, a slight catarrh or running from the head sets in, you must not immediately leave off the bath, as is often very wrongly done, until the catarrhous condition

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\* I should like to point out, in recommending these partial baths, which the "water-fanatics" think too small a dose every day of the curative element water, that man is first of all an air-animal not an aquatic creature. Dr. Lahmann has an excellent criticism of excessive "water-mania" in his most recent work: "There are a good many," he says, "who think they have reached the highest point of wisdom when they commend a daily splashing and rubbing, and douche or bath. It is true that this is good for many people, or rather it does them no appreciable harm; but there are many who injure themselves by this amphibious kind of life. The great stimulus to the nerves which is contained in this cold-water treatment is beneficial in a cure that lasts for six or eight weeks, but it becomes excessive when the splashing goes on all the year round. It is easy to see that a mechanical and regular abstraction of heat is not good for everybody, and it is quite intelligible that this perpetual rubbing of the skin deprives it of the fat that makes it supple, and which is of greater importance for the functions of the skin than the cleansing water. No animal ever rubs itself as the water-fanatic does: he is always intent on correcting the arrangements of the Almighty. The larger animals — such as cattle and horses — when they are in pasture, wade up to the knee, or at the most to the belly; that is, they only take a foot and leg bath. Every week they let themselves have a rain-bath or two; but they are continually taking air-baths. The man who is rationally dressed need not act differently from these animals. The man with a fat-paunch, with his bad radiation of heat, may very well take a cooling bath every day, so that he may not be consumed by the internal fire which he feeds with his alcohol and hot tea and coffee. The man who is improperly clothed may find some compensation in the contraction of cold water for the softening of the skin that is caused by his impervious garments — if he does not prefer, like the Esquimos, to use an air-bath for the purpose. But it is unreasonable to try to turn all of us into amphibious animals."

disappears, but continue as usual, and give the child one or more vapour baths. (You will find further particulars in the second part of this book.) The back, breast, and belly must never be washed just after a meal; two or three hours should be allowed to intervene.

If the child is four or five years old, it may be washed all over at the same time. When about to bathe, a metal bath, not too low at the sides, should be filled with fresh water, and placed in the sun until the water is raised to a temperature of 73 to 77° F.; and it is best to wash the child in the open air. According to Father Kneipp it is not necessary to dry it. Then clothe the child quickly, and let it run and jump about in the open air. In bad weather wash the child in the house with water that has been standing, dry it quickly, and let it warm itself by running and jumping about.

You will ask me now, you mothers, how long the partial bathing of children under four, and the complete bath of children over that age ought to last, and whether one ought to continue this hardening process during the winter. I reply that it is only advisable to continue the complete bath in the autumn, winter, and following spring, in cases where you have a room that is thoroughly free from draughts and with a temperature of at least 68° F. Place the child near the fire, if possible in a small bath or pail which is filled with warm water up to the child's ankles, and wash it quickly with the cool water; dry it at once, and let it run about in the room to get warm. The partial bathing of children under four should be confined to the face, arms and hands in the autumn, winter, and spring; and instead of the usual wash all over every day, bathe them once or twice a week with water of a temperature of 91° F.

It is a matter of common experience that we can stand cold or cool water better in summer than in winter. Water that cools and refreshes us in summer seems cold in winter at the same temperature. And so if you take a cold bath in winter for hardening, so as to prevent colds, you must be prepared to have a cold as the consequence of your bath. It may be caused as much by the difference between the temperature of the room in which you take the bath and that of the outer air as by the bath itself, as to which you may not have taken all the necessary precautions.

When the child has reached its sixth year you can begin to give it cold baths in the open air, instead of cool baths,



provided that it is strong and healthy. Still, the temperature of the water should never be less than 68° F. These baths are the best for cooling in the great heat of summer, and for learning to swim. But the children must be warned never to bathe just after a meal (not until three hours afterwards), and after a warm, quick walk or any heating bodily exertion, before the heart and lungs have fallen back to their normal rate of action, and only to remain in the water until they are cooled. The cooler the water, the less time must they stay in it. If they begin to shiver with the cold, the bath has already lasted too long and must be given up at once.

The older the child (boy or girl) is, the greater will be its capacity for resisting the cold in water. In the opinion of Professor Brücke the power of resistance reaches its highest point between the ages of eleven and sixteen, remaining the same for a longer or shorter period, and finally diminishing, according to individual constitution and mode of life. Generous indulgence in alcoholic drinks very considerably reduces one's power of resistance to cold water; even in ancient times people used to take the fear of cold baths (which were then much used) on the part of young or old as a proof that they had been addicted to drink and dissipation.

The swimming-baths which are constructed in large towns, containing water that is generally warmed up to about 77° F., should be frequented with great caution during the winter, spring, and autumn. One very frequently catches cold at these baths, because a bath at 77° F., when the outer temperature is so much lower, makes the skin very sensitive. Children over six who bathe in the open air, and who complain of the cold, or who find it difficult to warm themselves afterwards, must only be allowed to remain a very short time in the cold water, if not forbidden it altogether.

In the case of girls, the mother or governess must be extremely careful about the taking of cool baths for hardening at their critical or monthly period, or the "turn of life." At such time girls should never be bathed in water under 72° F., and during the actual period they should not bathe at all. A bath, even a cold foot-bath, during this period, often has fatal consequences.

I repeat once more the important rule that a cold bath must never be taken between from three to three-and-a-half hours

after a meal, and that this must be strictly observed also with respect to a partial or complete washing of the body with cool water. In particular I commend this to the notice of mothers who are accustomed to wash not only the face, hands, arms, and legs of their children at night before going to bed, but also the breast, belly, and back.

Another point of importance in the hardening of children is that the room must never be overheated. For children under two or three years the room must be kept up to a temperature of at least 68° F.; it must be remembered that little children are in the lowest layer of air in the room, and this is the coldest, because the warm air always ascends, in virtue of the physical laws. Bigger children can do with a temperature in the room of 63—66° F. But they must, of course, be well clothed so as not to be too cold.

Running barefoot is another valuable means of hardening children. A little magazine called "The Future" has an admirable article on the subject, and I shall transcribe it here on account of its sensible treatment:

"A Word to Parents on the Rearing of Healthy Children."

"Health is the most valuable gift that man has received. Is it not, then, our first obligation to do all we can to sustain and strengthen it? There is no better way of doing this than by hardening our children. This hardening may be brought about, first of all, by cold baths every day, massage, etc.; and, secondly, by proper and hygienic clothing. It is undeniable that we have made great progress, from the hygienic point of view, in the clothing of our children during the last ten years. There is still a great deal to be mended with regard to their poor feet, as is proved by the eternal complaint of 'cold feet' and chills, in consequence of the wetting of the feet. The hygienic motto: 'Keep the feet warm', is quite correct, but it must not be understood in the sense that the feet are to be packed in as warmly as possible. The feet stand in just the same relation as the hands to the rest of the body with regard to internal warmth; yet, whilst the majority of children are allowed to go with bare hands even in the severest weather, their parents seem never able to do enough in the way of thick and warm packing for their feet. They have woollen stockings, warm shoes, double soles, lined indiarubber shoes, or goloshes, and gaiters; and yet in spite of it all — or in consequence of it all — the children complain of cold feet, and are unwell if their feet

get wet. Eminent hygienists and teachers have said repeatedly that there is nothing healthier than to go barefoot as much as possible, and to let children go barefoot almost always; and in point of fact it is a matter of experience that people who went barefoot continually when they were children are much less sensitive, and very rarely complain of cold feet or anything of that kind. Everyone can easily test in his own garden what advantage it is in summer, for instance, to expose the feet to the air; how much it refreshes the whole system, and, if often repeated, hardens the feet until they become almost insensitive to damp and cold. The stimulus of the cold draws the blood from the head to the feet and thoroughly warms them. In some parts of the country the children of simple folk are lucky enough to have this hardening on a very generous scale. In the north of Germany (and the north of Britain — one sees plenty in Liverpool and Glasgow) there are plenty of children who have never worn a stocking, at the most they wear clogs in the very cold weather, And how healthy they are! And others who are accustomed to going barefoot are not in the least affected by wearing old boots in the winter-time, which let the water in and out freely."

"But granting the usefulness of going barefoot, people will say that respectable parents in the towns can at the most only let their children do it in the house or in a private garden, because it would look too much like beggars and would dirty their feet too much. So let us make a compromise, which will enable even well-to-do townspeople to harden their children by exposing their feet to the air."

"Let the children wear sandals. They protect the feet from dirt and wet and injury, they permit a natural development of the growing members, and they prevent corns and other malformations which are generally contracted in early years. That would be both a healthy and a pretty foot-covering for the summer (they could be worn in the house in winter also); fastened on to the graceful childish feet with coloured bands, such sandals would look very neat — much nicer, at all events, than the hateful leather shoe that now deforms the foot. In some places the pretty and healthy Scotch custom of having the knees and calves bare has been generally adopted, and almost become fashionable; why should not the same thing be done with regard to these much more healthy, more practical, and prettier children's sandals? In such

things it is only a question of a little energy in making the first experiment; once it has become the fashion, no one finds anything disagreeable about it, but all rush for it. The man who wants to bring up his children strong and healthy should take no notice of this stupid staring of the crowd, and adopt our suggestion: it would be a blessing and a pleasure to the children. No other kind of foot-covering is so practical, pretty, and suitable for children at the sea-side, for instance, where they are always wetting their shoes and stockings."

"Any shoemaker will make these sandals to order. The best material is cork with a leather under-sole, and they must be cut to the shape of the foot (placed on the ground) and provided with a heel-piece."

"Those who are absolutely determined not to let their children wear these useful sandals should at least let them run barefoot as much as possible in the house, or let them wear low shoes of light material (silk or linen) out of doors in the summer, and no stockings, as women and children do in Brazil, and it looks very neat and is healthy. This was once the fashion for children: we read in the "Journal des Modes" for 1803, that 'In England it was the general custom for the children to wear no stockings.' If it was once a fashion, let us have it back again for the good of the children. How would it be if the societies which have been formed for promoting a natural way of living were to try to introduce the wearing of sandals by appointing certain days on which the children of members should appear in sandals in public, as by organizing children's fêtes, at which the youngsters must wear sandals, or at least must not wear stockings. Try the experiment! It is for the good of the little ones!"

Father Kneipp, the well-known apostle of health, calls walking barefoot "the simplest and most natural way of hardening." In the second part of this book, dear reader, you will find a fuller account of the Kneipp system, and I must refer you to that. I will only recall to you at present these words of the venerable priest, that you may take them to heart for your own and your children's sake: "In the course of life many a storm rages over the health of men. It is well for him who has strengthened and deepened the roots of his health by hardening."

At the beginning of the present chapter I mentioned that fresh air was the first and chief means of hardening. I must



add open-air exercise as a further, self-evident element in the process of hardening. Running, leaping, jumping about, dancing, rowing, cricket, football, etc., and especially skating, are excellent means of hardening. The taking in of plenty of oxygen and the free exhalation from the skin during exercise considerably increase the combusive process in the body and the circulation of substance; and this leads, as I said in the preceding chapter on "Hardening and Enervation," to a proper distribution of the three chief elements of the living substance of the body — albumen, fat, and water. The child's system is made richer in albumen and poorer in fat and water.

If the children are still too small to be allowed to run and play about in the open air, the following rules should be observed in regard to them in the winter. Babies must not be taken out at all in frosty weather, unless a warm cloth is wrapped carefully round the head so as to make a sort of ante-room in front of the child's mouth and nose, and warm the air it has to breathe. On the outer opening of this little chamber formed by the wrapper a light pervious woollen cloth should be laid, so that the air may pass freely to the child's mouth.

Children of two or three years may be taken out into the air at 25 or 26° F., but only for a short time. They must not go far in such a temperature. When the temperature falls to 17 or 16° F., children under five must not be taken out at all. From the sixth to the fifteenth year the child's power of resisting the cold increases, and children of twelve can, when they are warmly clad and in good health, bear a low temperature as well as adults.

Diet is a most important point for the hardening of children. The child's system needs plenty of albumen. I have already treated the question of food so fully in the chapter on "What shall we Eat?" that I need not repeat here all that I said about it. I shall only say that the child's food must be plain, but well prepared. Wholemeal bread and fruit must be the chief food of children. It must not be supposed that to take plenty of albuminous, or nitrogenous, food means that the body is richly supplied with albumen, and so hardened. This idea of the physiological process of the nourishment of the human body is a very wrong one and a very regrettable one, as a great deal of harm is done to the health by taking too much albuminous food.

It is only a natural diet, consisting of albuminous foods, fats, and carbo-hydrates, in due proportions, with the co-operation of external hardening influences, that can give the proper distribution of albumen, fat, and water, in the living substance of the body, and so have the effect of hardening the system.

"One point to which the hardening process should never be extended," says Dr. Brücke, "is the night's rest. People are fond of saying: 'We should accustom our children to seven hours' sleep; too much sleep is not good for them.' It is just the contrary: the amount of sleep a man requires depends on his general constitution and on his nervous system in particular. Children must be allowed to sleep as much as they like; when they go to school later on, and have other duties to perform afterwards, they will not have much chance of sleeping too much. It is only when they begin to rebel against going to bed at night, when they lie awake in bed and want someone to sit by them and tell them tales, &c. — then is the time to interfere. It is not good, as teachers know, for children to lie awake at night. In such cases they must be stopped from sleeping during the day, until they can go to sleep promptly and soundly at night."

"At the same time," he continues, "I must say that those temperaments that need a good deal of sleep are not at all sleepy characters in the ordinary sense of the word; experience shows that the average strong craving for sleep may be associated with very high mental gifts and with a most intense activity in waking hours . . ."

"When children are to be awakened," he says, finally, "it must be done gently, whether they be big or little; bigger children should be called in a friendly voice, and not louder than is necessary, to awaken them; smaller children, who should not be aroused at all, when it can be helped, must not be pulled out of bed, but must either be gently awakened in bed, or, if what you want to do can be done with them still half-asleep, they should be left in that state."

## 18. The Care of the Skin, and the Bath; in Health and in Sickness.

In our intercourse with our fellow-men cleanliness is an indispensable requirement, imposed by regard for our neighbours. Most men comply with this social claim to the extent of washing their hands and face every morning when they get up. During the great heat of summer people bathe in the open air for several months: in the winter they leave the dirt severely alone. At the most they bring themselves to undergo the luxury of a wash all over every Saturday evening. A bath-room is a privilege of aristocratic houses. Not always, however. In that case "respectable" people take a "warm" bath at the public baths every week, and then flatter themselves that they have fully satisfied the requirements of cleanliness. Sometimes they take no bath at all for fear of catching cold — or of spending money "unnecessarily."

Things were very different in olden times. Amongst ancient nations a daily bath was a self-evident public duty. Moreover, bathing in public also served social purposes; people entertained and amused each other whilst they bathed. Men and women went every day to the public baths in those days — just as the men go every day to the public-house now-a-days, and the women invite each other to tea. That custom prevailed amongst the Greeks and Romans until the time when hygiene fell into decay with everything else in the two nations.

One might almost lay some of the blame for this neglect of hygiene to the spread of Christianity in its early years. In spite of the baptismal ceremony, which is clearly a symbol of cleanliness, the early Christians considered it a very meritorious thing to "crucify the flesh" and to neglect the care of the body, which was regarded as the chief source of peril to the soul. People chastised their bodies, and held that uncleanness of body was an essential part of asceticism.\* The bath was regarded as a "pagan" custom and a superfluity, and so the daily bath fell more and more out of practice.

In the Middle Ages, it is true, there were "bathing-rooms," where the surgeon-barber of the time was also to

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\* Asceticism — penitential exercises.

be found. These bathing-places, however, gradually disappeared, and the Germans had the unenviable reputation of being the dirtiest people in central Europe, until in modern times the care of the health (both private and public), and especially the bath, again came into favour. Public baths began to be erected in all the large towns, although most of them are even yet not sufficiently frequented.

At the same time a number of men arose — such as Priessnitz, Schroth, Rausse, Hahn, Rikli, and later Kneipp and Kühne — who succeeded in preparing the mind, by their teaching on the water-cure, for a rational care of the skin in health and disease. People may think what they like of the men we have mentioned: one thing is certain — they roused many a man from his uncleanness, who had hitherto only thought of washing his hands and his face, and persuaded him to extend the benefit of a wash to the entire surface of his body, in other words, to take a rational care of his skin.

As you know from previous chapters, dear reader, the skin is not only an important secretory organ, besides the lungs, intestines, and kidneys, but also a respiratory organ, and an apparatus for controlling our internal warmth. It is a faithful mirror of our internal condition, as it has intimate relations with the function of every single organ in the body. The state of our skin reacts on the welfare or disease of our entire organism, and this, in its turn, reacts on the health of the outer skin.

How faithfully the pale, bloodless face of the average townsman tells of the evil condition of his system! How clearly his pallid, flabby skin shows his want of light, air, sun, open-air exercise, and marks him as “room-sick!” How eloquent and expressive a story of bad food and other evils do we not read in the worn appearance and the yellow and gray features of the poor! How surely we perceive the effect of the vitiated air of the school-room on the languid cheeks of our children, who have to spend the flower of their golden youth in the schools, or more properly “human stalls,” overburdened with school hours, and home lessons, and consequently are withheld from what they need for both body and mind, if they are to develop in health and proportion — namely air, light, sun, suitable food, bodily exercise, and rest.

Let us now turn our attention to the skin, and study



its structure and functions. The skin, which consists of three superimposed layers, encloses every part of the body like a sack, binding the several parts together. But it would be a mistake to regard the skin merely as a general covering, as a protective membrane, or as a means of cutting us off from the surrounding air; in point of fact, as my readers already know, the skin must be considered as a means of putting us in uninterrupted communication with the outer world.

The outer or upper skin, the epidermis, which is very tender and devoid of nerves and blood-vessels, consists of a number of fine layers of cells, which arise from the layer underneath, the derma or cutis vera, and gradually die off, shrivelling into a kind of horny mass. Hence the epidermis of the human body can only in a very narrow sense be considered a protective covering, that is, in the sense that it protects the under-skin or derma, and puts it into communication with the light, air, heat, etc. The under or mucous layer of the epidermis, which rests on the tactile corpuscles (corpuscles of touch) of the cutis vera, is the seat of the colouring of the skin. The colouring matter — in the case of coloured men, for instance — is contained in its nucleated cells.

The lowest layer of the skin — a layer of adipose or fatty tissue — consists of soft, loosely-woven connective tissue, in and underneath which a quantity of fat is found, greater or less according to the position. This layer lies quite loose on the body side, and serves the purpose of, as it were, padding the skin and giving roundness and fulness to the figure.

The middle layer of the skin is the most important; it is called the corium, or derma, or cutis vera — that is, the true skin. The cutis is the foundation of the general covering of the body. Its upper stratum, that which contains the tactile corpuscles, is, as we said above, overlaid with the mucous stratum of the epidermis; its under surface is connected with the underlying parts of the body by means of the cellular tissue of the adipose layer. The cutis consists of an elastic, thickly matted fibrous tissue, a kind of connective tissue, with plenty of nerves and blood-vessels. There are also in the cutis an immense number of sweat and fat or sudoriferous and sebaceous, glands, sweat ducts (which pass through the epidermis and open out at its surface), papillæ

(that is, wart-like processes) containing blood-vessels, and hairs with their roots which are enclosed in cylindrical sacs or follicles.

The nervous system of the cutis is principally composed of nerves of touch. These nerves lie so thickly together, and

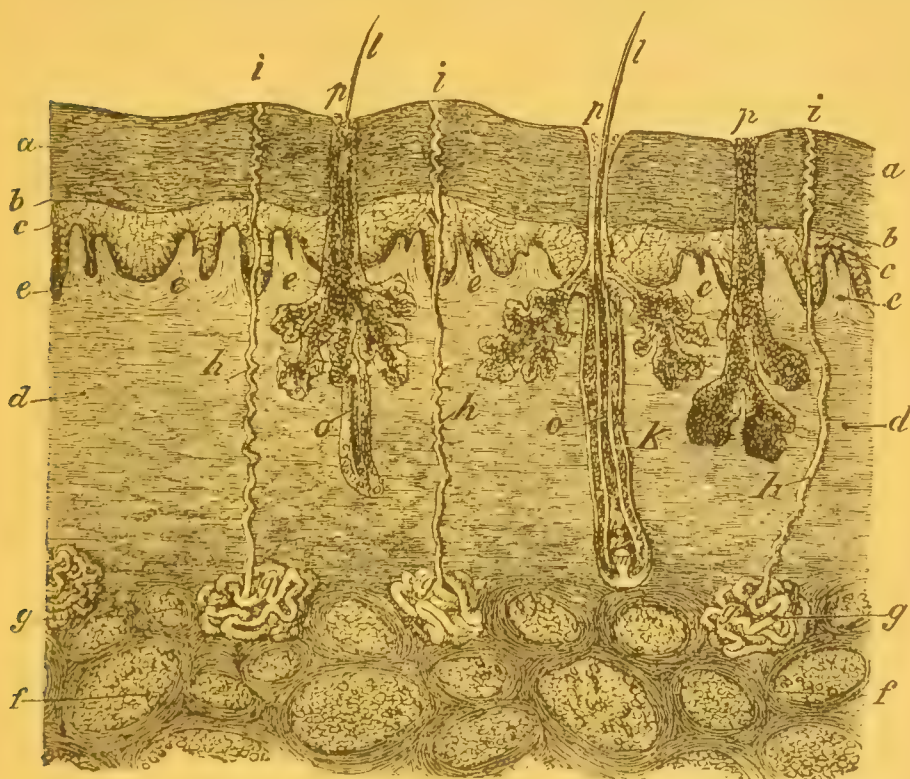


Fig. 16.

The external skin of man\* (vertical section, greatly magnified).

a. Horny or scaly outer layer of the epidermis. b. Mucous or inner layer of the epidermis. c. Colour-layer in the mucous net of the epidermis. d. Cutis vera. e. Tactile corpuscles in the cutis. f. Fat layer. g. Sudoriferous or sweat glands. h. Sudoriferous ducts. i, Sweat pores. k. Hair follicles, l. Hair. m. Germ of hair. n. Bifurcation of hair. o. Root of hair. p, Fat or sebaceous gland.

are so numerous, that they may be taken to be a distinct thick tissue. This extensive nerve-tissue of the skin lies free immediately under the epidermis, and contains no small proportion of the nerve substance of the entire organism. It forces its way, in the form of small tactile corpuscles,

\* See further under "Hair" and "Skin," in the Index.

into the mucous layer of the epidermis, especially in the palms of the hands and soles of the feet, at the tips of fingers and toes, in the lips and the tongue. It is directly connected with the rest of the nervous system by means of the brain and the spinal cord; hence it is evident that stimuli or impressions that are applied to the nerves of the skin must at the same time stimulate the other parts of the nervous system. This fact shows us clearly the great importance of the skin with regard to the whole vital process, and the immense harm that may be done by lowering its function or treating it badly, as well as the extreme value of a proper treatment of it for healing purposes, by water, air, light, warmth, clothing, bedding, etc.

The numerous blood-vessels which are also contained in the skin lie a little deeper than the nerves, and so thickly that the slightest injury — such as the prick of a needle — pierces the walls of the blood-vessels, as is indicated by the drop of blood that issues. These blood-vessels are either veins — that is, vessels containing dark red blood — or arteries — pulsating vessels with bright red blood — or capillaries — very slender, hair-like tubes that connect the veins with the arteries. The walls of these capillaries are so thin and fine that they permit the passage in and out of gaseous substances. In this way they bring about the uninterrupted circulation of material in the system, and convey food to all the different organs. Hence by a suitable action on the skin we may stimulate the function of the walls of the capillaries in the interest of the renewal of substance; and, on the other hand, by an insufficient care, or an entire neglect of the skin, we lessen the function of the capillaries, and thus seriously reduce and restrict the renewal of substance. Though such capillaries are found throughout the whole system, it is only those in the skin and the lungs that serve the purpose of breathing.

I have already said so much in preceding chapters of the exhalation from the skin and the production and radiation of heat from it, that I need not enter into it very fully here. I shall, moreover, often return to one or other of those questions in the alphabetical section. It would tire you, if I were to detain you constantly in the first part of my book with a long exposition of a subject which is rather dry in itself. On that account I shall leave the chapter on "The Skin" to be treated exhaustively in the third section. For the present just the few following remarks:



A man of middle height has about  $21\frac{1}{2}$  square feet of body-surface, and consequently about  $21\frac{1}{2}$  square feet of skin. In the middle layer of this skin there are about 15,000,000 minute papillæ, which contain the "tactile corpuscles," or terminations of the nerves of touch, and little loops of blood-vessel for warming the skin. To these must be added more than 2,000,000 sweat glands, coiled up into little knots, which lie under the skin, and the apertures of which are bored through it. (On the back, cheeks, upper part of the arm, and thigh, there are from about 900 to 1800 glands to the square inch; on the forehead, neck, breast, forearm, hand and foot, 2900 to 3200; on the sole of the foot 8000, and on the palm of the hand 8500 to the square inch.)

The liquid produced by the sudoriferous glands keeps the surface of the skin moist, and so provides the necessary cooling. If the warmth of the body is much increased owing to an acceleration of the circulation of the blood, tiny drops (of sweat) appear at the apertures or pores of the sweat glands that lie deep in the cutis, and these drops gradually run together. The surface of the skin is, as is well known, covered with a warm moisture when we perspire, and it is this unimpeded outpouring of sweat that effects the cooling of the surface.

In other special glands of the cutis is formed the fat or grease of the skin, which is removed by means of special ducts or canals that open out at the surface of the skin. These fat or sebaceous glands are found in those parts of the body where there is hair, and the sebaceous ducts often take the same course as the hair follicles,\* so that they have a common aperture in the epidermis. The openings of the fat ducts, can be seen distinctly when the skin contracts under the influence of cold or fear. The terminations of the ducts filled with fat, are then visible as little knots. This is the peculiar condition which is familiarly called "goose-skin."

If, then, the pores — that is, the openings of the sweat and fat glands — are closed with dirt, the discharge from

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\* The "hair follicle" is a small cylindrical shaft that firmly encloses the root of the hair. This follicle goes down deep into the cutis, sometimes even into the subcutaneous fat. From the bottom of the follicle the hair develops out of its germ. (For further particulars see under "Hair," in the alphabetical portion.)



the skin is restricted; and when this stoppage of the pores continues, they come at length to lose their chief quality, elasticity, because of its being so little exercised. If the function of the pores continues to be interrupted they cease to close under the action of heat, and thus no longer permit the secretion from the skin to get away. And we have seen in the chapters on "Clothing" and "Bedding" what an amount of harm is done to the health by forcing back and retaining these effluvia in the system.

Hence a daily washing of the entire surface of the body is not only a matter of cleanliness, but it also serves to keep open the apertures of the sebaceous and sudoriferous glands.

However, the apertures of the glands are not only stopped up with dust and dirt, but also with their own discharge — sweat and fat. This accumulation of secreted matter, and the stoppage it causes and the interference with the function of the skin, may not only lead to a number of serious internal maladies, but may cause, as is evident, an outbreak of skin-disease. Pimples, scabs, maggots, herpes, etc., are generally brought on in this way, when they are not caused by improper food, and such causes. But both causes — bad food and neglect of the skin — may co-operate in producing disease, just as the work of the lungs may be spoiled by bad air.

The clean man is more or less hardened: the dirty man is more or less enervated.

In the clean man the exhalation from the skin takes place freely; his other excretory organs work with the same regularity, his circulation of substance is brisk and lively, his humours and blood are pure, his muscles are firm and tense, his skin ruddy and glowing; he is confident, happy, and vigorous.

The dirty man, on the contrary, is languid, pale, and flabby; fat and water predominate in the distribution of the elements (albumen, fat, and water) of the living substance of his body, and they settle in the fatty tissue under the skin. His movements are slow and indolent; the suppression of the exhalation from the skin causes sluggishness of the digestive organs and a general feeling of cold and shivering; to keep out the cold he puts on one garment after another, muffles himself up to the nose in winter, and is always on the look-out for draughts, yet never feeling any better for

all his precautions. The hindering of the renewal of substance, the retarding of the circulation of the blood at the skin, and the stopping up of its pores, make it utterly impossible for him to enjoy health and comfort of body or soul.

You will tell me, dear reader, that country people and uncivilized races, such as Indians, gipsies, savages, etc., take no care whatever of their skin, and yet they are healthy.

Yes, that is so; but in the case of people who are moving about all day long in fresh, pure air, with plenty of ozone and oxygen, the lungs and digestive organs generally act in the most regular and perfect manner, and so, at least as far as breathing and digestion are concerned, their circulation of substance goes on admirably. The peasant very rarely has reason to complain of his digestion. He breathes the best kind of air, not the vitiated air of the townsman; and he would have still better air to breathe, if he had not such a passion for keeping a dung-heap near his house — opposite his living-room if possible — and he would enjoy a still higher degree of bodily comfort if he would only ventilate his house properly by day and night. (See the chapter on "What should our Houses be like?")

A moment ago I mentioned the travelling gipsies, and the Indians, and savages, who take no care of their skin according to our ideas. I mean simply that they do not wash and take baths. But the gipsies have a kind of treatment of the skin by greasing it. Fat promotes the activity of the skin. When it is rubbed with fat it becomes soft and supple, and it can stand a more vigorous circulation of the blood without injury — a fact that was known to the ancient Romans, Greeks and Jews, and that is taken into account by the modern Orientals. Amongst the civilized nations of antiquity, who invented and perfected the bath, it was the custom to rub the body — the "house of the soul," as it is called in the florid and figurative language of the East — with sweet-smelling ointment and fat after a bath. The common idea that the pores of the skin are stopped by rubbing with grease is a mistake, and is clearly disproved by the bathing methods of the aforesaid nations and by the custom of the gipsies. Moreover, in that case nature itself would have blundered in putting the sebaceous glands in our skin. You can no more choke the pores, or

the sweat and fat ducts of the human skin by rubbing it with grease, than you can stop up a running cask with oil.

Therefore, the gipsies do take care of their skin, in a different way to our own, though I am not going to present them as models of cleanliness. Their digestion and breathing are in very good condition, and serve to complete the circulation of substance. I confidently infer this from the lively play of features and the elastic and vigorous movements I have noticed in the brown people, who, above all things, show no trace of hypochondria and similar ailments that point to a disordered digestion. Still I have never asked any of these oily-skinned black-haired wanderers whether their "delicate" health suffered at all from the want of baths. Up to the present, these nomadic people have succeeded in keeping clear, to the advantage of their health, of such blessings of civilisation as being shut up in closed rooms all day, and so forth.

Even the savages are "better" than we in respect of natural hygiene. They breathe pure air, like all free-living people — not air filled with dust that fouls both the lungs and the skin. In fact, according to the climate and season — I can only speak from my own experience in a tropical and sub-tropical climate of the Indians of the Argentine Gran Chaco in South America — these children of liberty expose themselves half-naked to the sun, the air, and the weather, though only until about ten in the morning and after about four in the afternoon to the sun. The heat of the day, from about ten to four, is spent by the South American Indian and the more or less civilized Creole under the shady roof of his rancho, the front room of which is quite open to the air on three sides. On account of the marvellous purity of the air, which fouls neither the lungs nor the skin, the skin of the South American native, wearing the lightest possible clothing — almost an Adamite costume — is in such a fine condition, that the constant bathing of it day and night with air and light makes any application of water superfluous. Hence the outward application of water is instinctively, I might almost say anxiously, avoided by the natives; they only overcome their dislike of it when they have to wade or swim across rivers, which cannot be traversed on horseback. Thus the Indians and savages are true creatures of air and light, in the sense of Rikli.\*

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\* For further particulars see under "Light-air Baths," in the Index.

I bathed very frequently when I was in the tropics, especially in Paraguay, but it was mainly with the object of finding some relief from the intense heat. As I write these lines in my study I recall with pleasure the memory of the pure atmosphere that I breathed day and night out there — a circumstance which, naturally, had a great influence on my bodily and mental health.

The townsman, who is “compelled” to breathe, in the streets, the workshop, and his living and sleeping rooms, an atmosphere that is always more or less vitiated with pestiferous matter and microbes of all kinds, must keep his skin clean in order to ward off the dangers that threaten his health from so many sides.

It is easy to do that with a little good will. The obtaining of pure air and suitable food does not always depend on his good will. On the contrary, he is frequently very much opposed to the unnatural conditions of life that cause the concentration of men into large towns, on account of the dangers to which he must expose his health in such surroundings. However, he can always get plenty of good, pure water, and so keep his skin as clean as he likes.

In stimulating our skin with cold or cool water, when we wash or bathe with the necessary precautions, we are deadening what is called the reflex action against cold — in other words, in accustoming our skin to the cold, by this continual application of cold water, we are at the same time weakening the effect on our skin of a change of temperature (for instance, the sudden change from heat to cold). We are also exciting the pores, nerves, and capillaries in the skin to a greater activity, promoting the exhalation from the skin, and therefore increasing our power to resist prejudicial external influences — in other words, we are hardening ourselves.

Experience teaches that if once you begin to harden with water it must be continued, if the effect is to last. If it is discontinued, the skin falls back into its former enervated condition.

Hence the care of the skin and frequent bathing whilst we are in health are the best means of guarding against a good deal of disease.

“The first thing,” says Dr. Munde, “that every reasonable man who has a care for his skin and all it contains should do in the morning to keep himself healthy, and agreeable



himself and others, is to wash the whole surface of his body with cold water, as fresh as possible. Cold water should be preferred to warm in all circumstances, because it not only cleans, but also stimulates the nerves of the skin by its temperature, and so indirectly quickens and braces up the entire nervous system. A general feeling of comfort is always the reward of a bracing cold wash; it not only refreshes, but warms one."

A cold wash of the whole body, which adults\* may have in summer and winter, should only take place in winter in a room the temperature of which is about the same as the average temperature of the open air in summer. Hence the bath-room must be well heated in winter. It should have a temperature of at least 68° F., so as to avoid catching cold. It is best to wash all over first thing in the morning, immediately after leaving the bed. In such cases a moderate perspiration need not prevent one from having a wash, as it has not been caused by work or exercise, and does not, therefore, imply an increased activity of either the lungs or the heart. But the room must be warm (68° F.), and all that is needed for the wash must be at hand.

A vessel — a large wash-basin — of water, a strong towel\*\* about two feet broad and two feet and a half long — one or two larger, and not too fine, towels for drying — a woollen cloth or a small carpet to stand on whilst washing, and a pair of felt slippers, are all that you need.

Those who are not yet inured to cold water should begin with a temperature of 72° F., and gradually reduce it, as they get accustomed to it, to the natural temperature of water; but in winter it should not go below 50—56° F.

Constitutions differ so much that we can only assign a temperature for the application of water approximately. This is a good test: The water is certainly too cold for washing the body when one feels a painful sensation in the hands if they are held in it. Hence everybody has a thermometer of his own in his hands, to a certain extent.

The wash should not take more than two or three

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\* As to cold baths for children, see the chapter on "How shall we Harden our Children?"

\*\* A strong towel is better than a sponge for washing. You can rub the skin better with a rough towel, and wet a larger portion of it at once. Also you can wash your back better, and you do not make the floor so wet as with a sponge.

minutes. You should get out of bed, put on the felt slippers, take off your nightdress, and stand on the woollen cloth or carpet in front of the vessel of water. Then dip the towel in the basin, squeeze it gently with the hands, and wash your face, neck, and throat with it to begin with; then the shoulders, arms, breast, and belly. Then rub the back, throwing the towel over the shoulder, grasping the ends in both hands and running it up and down; then change shoulders and rub crossways, again holding the ends of the towel in both hands. Of course, the towel must be dipped in the water from time to time; the proper time to do it is whenever it begins to get warm. Then dry your head, neck and upper part of the body quickly;\* put on your shirt, and begin to wash the lower part of the body, holding the shirt up with one hand. After that you have the thighs, calves, and the feet. Wash each part separately and dry it at once. It is well to dry the feet, especially the spaces between the toes, in order to prevent sores. Then put on your clothes quickly, and walk about briskly in the room for a minute or two, or take exercise in the open air.\*\*

I have described the process of washing oneself so minutely, because in the course of my practice as a physician of the natural treatment, I have heard so many complaints of catching cold whilst washing with cold water. Whoever follows the directions I have given, may be confident he will not catch cold, but will strengthen and harden his skin, and so avoid an amount of illness that generally arises from the neglect of the skin.

**The best means of avoiding colds is to make oneself cold every day!**

This complete wash may be done anywhere, even when you are travelling. Whether the hairy part of the head should be washed or not depends on the length of the hair. In any case the head must be rubbed thoroughly dry whenever it has been washed. In the summer-time, especially if there is an opportunity of bathing in the open air, the wash all over may be repeated before going to bed without any fear. It should be done in the same way as in the

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\* It is part of the Kneipp system not to dry the body after a bathe. I cannot go more fully into it for the present, but must refer the reader to the subject in the Index.

\*\* There is also another way of washing oneself all over, See under the heading of "Washing," in the second part of the work.

morning. Even if you are tired, and especially if you have perspired much on account of the intense heat, you should be very unwilling to omit your wash, because it is refreshing and stimulating. A daily "tub and rub" not only makes the skin finer and brighter, and fresher in appearance, but it also makes the exhalation from the skin less odorous and disagreeable.

You will find further information on the subject of "Washing and Massage," dear reader, in the second part of the work, but I have still something to say to you in the present chapter on the use of the bath in health and on the care of the skin in sickness.

Opinions are divided as to the value of the bath. There are those who think they can prove that people who bathe much and frequently are no stronger or healthier than people who rarely or never take a bath. They say further, that for the possession of health and the avoidance of disease there are other important factors at work, and that the bath as an individual element has no very special significance in the matter.

When we regard free-living people, these views, as I said before, are not without justification; man, in his natural condition, is not a water - but an air - creature. But the number of savages and of those who lead, or can lead, an approximately natural existence, is now comparatively small. The majority of the inhabitants of the earth are now members of civilized communities, and have no intention whatever of returning to a state of nature. The only aim that they can propose to themselves in the matter of health is to become and to remain healthy civilized beings. The body and the skin of a man who cannot be always in the fresh air and have a natural food are continually fouled by all kinds of unpleasant things — especially by dirt and dust, and by their own exhalation; hence, seeing that it is, as I said above, so often beyond his power to secure wholesome food for his lungs and stomach, he must pay particular attention to the cleanliness of his skin, as his most important breathing and excretory organ. And it is only by a proper application of water to the skin,\* by washing and bathing it, that this important hygienic requirement can be satisfied;

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\* Naturally, the health of the skin is also promoted by "reformed bedding" and "reformed clothing."

only by a hardening that is adapted to our constitution and our strength can we to some extent arrest the influence of the unnatural conditions of modern life on our welfare of soul and body.

In summer open-air bathing — in ponds, rivers, or the sea — is the best means of keeping the skin clean. The following rules should be observed with regard to open-air bathing:

1. Begin to bathe with the water at 68° F.
2. Go slowly to the bathing-place.
3. Do not bathe within three hours of a good meal; but never bathe on an empty stomach.
4. Wait five minutes with your clothes on.
5. Strip quickly and leap into the water.
6. If the body is heated and the pulse quick, rest for ten or fifteen minutes until you can bathe without risk.
7. Do not remain more than ten or fifteen minutes in the water as a rule; nervous and weakly people should only remain five minutes in the water.
8. Move about briskly in bathing, and rub the breast and cool the head to prevent headache.
9. After the bathe dry the feet, arms and legs first; then the body, breast, and head.
10. When you have finished, take exercise until you get warm.
11. If you are healthy, you may safely bathe down to a temperature of 63° or 62° F. in open water.
12. Children over six years of age should be allowed to bathe in a sunny spot in the open air, in water that has been exposed to the rays of the sun for several hours, and has a temperature of about 68° F.

People who are accustomed to wash themselves every day with cold water should have a warm bath, at a temperature of 92° F., once a week, for the purpose of cleaning the skin with soap. But they should wash themselves with cold water (73—77° F.) immediately afterwards, as a warm bath is always relaxing and disposes one to catch cold.

"In the winter time," says Dr. Reclam, "slipper baths are to be preferred, but one must be careful about their temperature. A warm bath relaxes and enervates by lessening the quantity of heat lost; it is only suitable for old people and invalids, for those who are very fatigued after a journey, for new-born infants and babies. The adult needs to lose



some of his internal heat, because the loss stimulates his body to the generation of more warmth and promotes the circulation of substance, and consequently benefits his health. A hot bath of a temperature over 95° F. may be dangerous for a healthy person. A lukewarm bath (92—93° F.) is soothing, and for many people serves as a help to sleep. A cool bath at 86° F. doubles the formation of heat in the body, and one at 66—68° F. quadruples it. Hence the temperature of the bath is by no means immaterial, and on that account the bath should not last longer than ten or fifteen minutes. It is only strong and healthy people, already accustomed to bathing, who can remain longer than that in running water, if they exercise their limbs by swimming and thus maintain the circulation. People should be very careful about remaining long in wide rivers, or lakes, or the sea. It has frequently happened that even young and vigorous persons have become so cold by remaining long in the water that they lost all their strength for swimming, and finally became unconscious and sank.”

A daily wash all over and a weekly bath with soap are urgently needed by people who breathe a good deal of dust in their business, or who have a very dirty employment.

This requirement of private hygiene has been taken up by the public authorities who have provided public baths at a low price in most of our large towns. A bath can be had for twopence in most places, and the water will be turned on to any temperature desired. For this sum any man or woman of the working class may have a good bath. Do the workers take advantage of it? Or do they not still prefer an internal application of their brown-coloured water — their beer? In any case it is clear that the man who is in earnest about his health does not want opportunity. For even the poorest can afford twopence for a bath, and so strengthen his system as well as remove the dirt, and open the pores of the skin; it will give him a different strength from that which he gets from the deceptive exciting strength of his intoxicating spirits.

It ought to be more clearly recognized than it is nowadays that the health of the people is one of the chief factors in the life of the state, and that the fate of a nation depends on it in the last analysis; and the practical consequences of that truth should be more consistently accepted. The modern world does a great deal to alleviate the suffering that arises

from disease of body and mind, but it does very little to avert it, and to foster the health of the people. One of the many things that could and should contribute to it is the bath — daily, if possible — and it is one of the things that is most neglected amongst us. How many are there amongst our artizans and country folk who never dream of having a wash all over once they have got beyond the weekly bath of their early years, and how many are there who think they have done all that is required, if they take a bath once or twice a year? Yet it would be an incalculable gain to the health of the community, if the habit of taking a bath every day became a general practice.

A general custom of that kind would help to keep the people healthy, not only in body, but in mind and morals. That it is most important for the health of the body that the skin be cleansed by a bath every day should be generally recognized. But it is not sufficiently appreciated by the friends of the people that the mind also is best awakened to renewed life, after the lethargy and fatigue it is always sinking into as a reaction on the strain of modern life, by the use of cold baths. Yet such is the case. Try it only for a time, you who now seek recreation and refreshment after your day's work in the public house, spending a couple of hours in small talk, and you who think a short walk is the only means of bracing the nerves. Off to the river or the pond every day, as soon as the weather permits, and you will soon feel a renewed strength.

Finally, the third point — that the cold bath may also have an effect on the morality of the people — is least of all taken into account; firstly because such an influence is not capable of anything like a direct proof, and secondly because questions of this kind are of a delicate and precarious character. People should remember that most of the moral evils that threaten modern nations with decay have their origin, in the biblical phrase, in an excited condition of the flesh. And in most cases it is perfectly true that "the spirit is willing, but the flesh is weak." Now the efforts of most of our moralists, preachers, and pedagogues are directed to the strengthening of the spirit so as to overcome the flesh — an effort which, certainly, should never be relaxed. But is it not of equal importance to cure our flesh of its morbid desires, and so make the victory of the spirit easier? A great deal may be done in this direction, especially at the period

of development, by vigorous exercise in the open air, and, wherever it is possible, by a cold bath every day. The heat of summer urges a man of himself to seek relief in the cool water. Follow this instinct! And take care, you parents and teachers, that the children committed to your charge have a bathe every day, at least in summer. You will soon see the effect of it. And both the urban and the rural authorities should see that every man and woman has an opportunity of bathing. Whatever money is spent from the public purse for such an object is well spent. It is true that it will bring a great blessing in the shape of an improvement in the health of the people, and in the course of time all that has been spent in the cause of hygiene will be saved in the reduced cost of hospitals and asylums, and perhaps prisons also. It may be questioned whether we shall get so far as to have warm baths erected in every village — as we have already in our towns — so that they may be at hand for the use of everybody, even in cold weather. We hope it will be so, even if the time be remote. One thing, however, could be done now; at least in summer there should be an opportunity provided everywhere of a cold bath or swim in the open air. That would not involve very much outlay, and it ought to be done in the interest of the people's health.

Dr. Paul Niemeyer has made some very striking remarks on the importance of the weekly wash-bath for artizans and workers in the book I have mentioned previously. He describes so graphically and faithfully the ideas that are current amongst the people about baths, that I shall transcribe a few passages in the interest of my readers.

"If you notice how quickly a plaster statue in your living room loses its appearance, you can easily understand the ruin to which the skin of the worker is exposed in his factory. A still better idea can be formed by beating the clothing of a workman; a cloud of dust arises at once. And what a stench there is sometimes in the garments they have worn all day. But the dust and fumes unite to stop up the 2,000,000 pores of the skin, impede the exhalation from it, and irritate its nerves. Cutaneous diseases, frightful ulcers, suppuration of the tissues, are daily occurrences amongst them. And even the internal organs suffer through the suppression of the exhalation, which (including the discharge from the lungs) amounts to 17—28 ounces in 24 hours. The

ancient physicians had this in mind when they reduced a number of internal complaints to "suppression of exhalation" or "retained waste;" we call it "neglected ventilation of the skin" nowadays. But the plague of dust is not the only evil; the mere omission of regular cleaning is no less prejudicial. Even people who wash themselves every day find the water discoloured with the cast cells of the epidermis (scurf), little hairs, salts, and organic dirt. Soiled linen, when not changed very frequently, contains four or five pounds of dirt to every 100 pounds of its own weight. The ancient Greeks have illustrated the unhealthy character of such linen by their myth of the shirt of Nessus, which poisoned everybody who put it on. You can see what a thorough care of the skin does in the case of the — chimney-sweep! The more this fraternity revels in dirt during the week, the more it is compelled to have a thorough cleaning on Saturday evening; and the soot serves as a kind of brush for opening the pores. As a matter of fact I know no other class of workers that offers a sharper distinction by its clean appearance out of working hours to the dirtiness of its trade. Sometimes the sweep's face is of a glowing white and red, and he very rarely gets disease of the skin. But how about the cleanliness of other workers? The smith, the mechanic, or the mill-hand, thinks he has done all that is necessary when he has washed the top dirt from his face and hands in the evening. The clerk and the warehouseman also are too much afraid of water to use it as much as they ought, and are falling off more and more in the use of soap and sponge. I know craftsmen who have frankly told me that "they have not had a bath since they were married." As I am writing this a shower of rain falls. I go to the window, and see a flock of pigeons exposing themselves to it in their desire for cleanliness, and lifting up their wings to let the water get well in! However, it is not my purpose to write about washing and bathing in general, only in connection with the Sunday's rest; and I say this — give the workman his Sunday, and he will need no pressing to wash, and bathe, and comb himself thoroughly on Saturday evening, and so take the first step towards refreshing himself properly. Sleep is very refreshing after a bath; you feel all the pores working more vigorously, and on the following day the skin rivals the lungs and muscles in the work of ventilation and getting all the waste out of the system, that has been accumulating



during the week. It may be taken as literally true when you hear a judicious and habitual bather say that a bath 'clears the brain.'"

So far Dr. Niemeyer. I trust, dear reader, that this striking passage of the late natural physician has made such an impression on you that you have made up your mind to take more care of your skin in future. Cleanliness keeps away illness! The famous hygienist Louis Kuhne used to say "Cleanliness is the only remedy;" and as we say in English "Cleanliness is next to godliness." The clean skin alone is healthy; only by the diligent care of an organ that is so important for the whole life-process can we keep our other organs in a healthy condition.

The treatment of the skin during illness must be of a different kind. If we want to act on the skin with water as a remedy for disease and for the purpose of regaining health, as we do when we are well, we must do so in a very different way as to method of application and temperature. We must bear in mind that the illness possibly came on as a consequence of the neglect of bathing, and that if we apply to the sick what is intended for the healthy we shall probably do more harm than good. Not only the skin, which has probably had no experience of water for a long time, may be injured by an unsuitable application of it, but the entire organism, which is so closely connected with the function of the skin, may share in the injury. Instead of recovering his health the patient may become worse than ever. There are a hundred rules and regulations to be observed in the water-treatment of the sick. It must be infinitely varied according to the nature of the disease, its violence and duration, and according to the age, sex, and constitution of the patient. Hence any hard and fast way of proceeding with invalids may be very dangerous. No two men are made alike, and the same disease takes one form in one man and another form in a second, and therefore often needs quite a different treatment by the water-cure. The individualising of a disease — that is, the recognition of its peculiar features in each separate case — is one of the most important points to attend to, if your water-cure is to be successful, and not injurious. Healing is not an exact science with stereotyped laws to which things are subject, but an art, based on experience, practice, observation and reflection, that has not a complete set of models

by which to regulate the treatment of patients and restore their health.

The strength of the patient in general, his vital force — which is represented by the nerves, the vehicles of life — the condition of his different organs, his digestion, sleep, etc., must all be carefully considered before beginning the water treatment; only then can one proceed to select the most suitable application.

The chief aim of my book, dear reader, is to teach you the right way to do this! Do not imagine that it will mean too difficult a task. First of all secure a thorough knowledge of the water-cure, and you will soon gather and enjoy the fruit of your little exertion, when you are in a position to be your own and your best physician. I shall treat the subject more fully in the next chapter and in other parts of the work.

## 19. A Brief Glance at some Forms of the Water-Cure, and the use of various kinds of Baths.

“The same conditions that maintain the human organism in health are alone capable of restoring it when illness has supervened.” That is the fundamental principle of the natural method of living and healing. I have already fully described for you, dear reader, in the preceding chapter, the importance of the skin, as a respiratory and excretory organ, as regards the whole process of the renewal of substance. It is also clear from my observations, as you will see for yourself, that when the skin has been rendered inactive through the prevention of its exhalation owing to the stopping of the pores, it can no longer remove the waste matter from your system, because it is also hampered as a respiratory organ by the inability to absorb oxygen. As a natural consequence, the waste products remain in your system—your other excretory organs being also weakened in their action, in virtue of physiological laws, and so being unable to take up the function of the skin that has been choked up—and after a longer or shorter period lay the germs of disease in your interior. You are already ill, in consequence of this accumulation of morbid stuff in your interior, although you may not be conscious of it. You feel all right “so far,” though there are little things that ought to

draw your attention to the fact that there is something wrong with your machinery. To feel well is not the same thing as to be well; there are, as the motto at the beginning of this part of my work says, more people who imagine themselves well than people who imagine themselves ill. But a change comes, when, as the result of a release, which is called a cold, a change of temperature, an infection, a strong emotion, etc., the morbid matter in your system begins to ferment, and rushes violently to the various exits (bowels, kidneys, lungs, and skin) in order to make its way out. Then at last you feel ill. The change in your interior has drawn your attention to your condition. The morbid matter wants to get out, as I said, and rushes violently to your skin, because the heat generated by the fermentation has, in virtue of physiological laws, expanded the dividing walls in the system. But it finds a bad state of things at the skin. The skin, so long neglected and rendered sluggish, is now less able than ever to discharge its function, and master the amount of morbid matter the system wants to remove. The skin cannot let it pass, and so the morbid stuff makes for your intestines, kidneys, and lungs, which are just as unable to deal with it all at once. Then serious stoppages are caused in the physiological machinery of the organism; the fermentation increases, the heat it generates changes into fever, and other organs may be drawn more or less into sympathy according to the seat of the foreign matter, the direction it has taken in settling in the system, and the condition of your various organs; and thus the most varied forms of disease may be provoked.

Well, what must we do in your diseased condition, which may be feverish, or what is called "acute?" The combustive process in your system has been so much intensified that it threatens to destroy important organs. We must see if we cannot restore their normal activity as soon as possible to your excretory organs, which have almost, if not entirely, ceased to act, and do all we can to stimulate them to more vigorous action; we must also endeavour to moderate the burning in your interior, being careful not to extinguish it altogether, as the fever indicates an effort of your system to relieve itself.

We must provide your lungs with fresh pure air; we must convey a light, natural food to your digestive apparatus or impose a fast on it, if a temporary abstinence be

advisable; we must stimulate the activity of your kidneys by a supply of water; but, most of all, we must at once subject your skin to a suitable water-treatment. We can not only influence your entire organism through that organ, but the great extent of the surface of your skin offers us the best means of reducing the morbid increase of the combusfive process in your interior, of controlling your fever and turning it to account in the healing process, of lessening the heat of the blood, of soothing the nerves, and of cooling, refreshing, bracing and putting new life into the skin itself.

In order to moderate your feverish condition, my good reader, we must first wash you all over. I see that you are not very well off and do not possess bathing apparatus in the shape of full-length bath, half-bath, hip-bath, etc. Moreover, I see that the fever has made you very weak, and we must proceed cautiously. First, I will help you from the bed to a chair, whilst I spread a cover over the bed to prevent it from getting wet. Now you can lie down again, and let me cover you up, because I am going to wash your face and neck first, and dry them immediately afterwards. As you see, I am using water of a temperature of  $82^{\circ}$  F.\* out of regard for your low condition, and I shall lower the temperature a half-degree at each succeeding bath, in proportion as your condition improves, until we reach  $73^{\circ}$  F. I squeeze the towel, which I have dipped into the pretty large vessel of water, so that the water does not run from it. But while I am washing your face I notice that the towel has got warm. I must dip it in the water again, and then continue to wash your face — and the same with the other parts later on — until the heat has disappeared from it, and your skin feels cool and pleasant. Now the neck! And now let me put your shirt on. Good! But I must cover you again with the blankets, because I am going to wash your arms next.

I have now bathed one arm several times and dried it; it feels cooler already. Give me the other. Good! We have now cooled that one also.

Now before I proceed with your bath, I shall change the water, and bring fresh, again at a temperature of  $82^{\circ}$  F. The water we have used is dirty. It is so much discoloured

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\* In the case of very weak patients — such as consumptives, etc. — it may be necessary to begin with a temperature of  $93^{\circ}$ — $91^{\circ}$  F., reducing it gradually as the patient recovers his strength.



and thick with the cast cells of the epidermis, with organic dirt, and with the discharge from your skin, that it badly needs renewing. Moreover, its temperature has increased to more than 82° F., because the towel has imparted to it the heat that it received from your skin.

Now we have fresh water. We must turn the blankets down again whilst I wash your breast and abdomen. "But," you protest, "I shall catch cold, because the temperature of the room is only about 59 or 60° F." That will do you no harm. Fever patients find even a lower temperature (50—54° F.) agreeable: they do not catch cold very easily.\*

Now we shall wash the breast and abdomen. They are hot; I can tell it by the warming of the towel. Now they are getting cool. They seemed to be a long time about it. Now the neck. We have already dried the forepart of the body by dabbing it with a soft, dry towel. Perhaps you can raise yourself? If not, lie on your side, or turn over and lie on your breast. We have finished the back and will now renew the water again. Wait a moment; let us put on your shirt again first, and cover you up. Now for the legs and the feet. Stretch out your right leg under the blankets, and I will wash and dry it. Done! Now the left. That is also washed and dried.

Now, how do you feel? "Better!" Very good, but let me feel under your arms to see if they are still cool. It is only then that I can accept your assurance that you are better. Yes, they feel cool. And now I will put a bandage on you which I have dipped in water at a temperature of 73° F., which must be wrung out pretty well, in order to stimulate the abdominal organs to greater activity, and to promote the circulation of blood to the skin and the exhalation of foreign matter.

Now let me open the window again, which I closed when I began to bathe you. Your lungs need fresh air more than ever now.

Do you want anything to eat? "No!" Try to sleep a little, then. If you perspire during your sleep, we shall repeat the bath when you awaken.

However, I see you cannot sleep, so I will talk to you a little, although sleep would do you more good.

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\* However, it is best to have the room at a temperature of at least 66—68° F. whilst bathing them. Naturally, they can only bear a lower temperature for any length of time when they are well wrapped up in bed.

This wash all over that I have just given you has a wide application in the healing practice of the water-system; it is especially useful in cases where the condition of the patient or other circumstances prevent a more thorough bath. The washing all over of invalids has many variations in the way of accomplishing it, according to the strength of the patient.

The towel may be either rough or smooth — that must be settled by the condition of the patient. However, it ought not to be a new one, because they do not absorb the water. Hence it is best to use old, well-washed towels, serviettes, etc. A sponge, on a flesh-glove or cloth, may be used instead of a towel.

The temperature of the water must in all cases be determined by the condition of the patient; it is a rule, however, never to go below 66—68° F. For patients of weak nerves who are not accustomed to water, a higher temperature (82—73° F.) is necessary; robust people may have it at a lower degree (73—68° F.)

Patients in an acute stage are, as a rule, dried by gently dabbing the skin with the towel, whereas chronic invalids may be dried by rubbing the skin in order to promote the circulation in it. In cases of severe illness it is sometimes necessary to omit the washing of the back of the body. In cases of disease of the skin (small-pox, measles, scarlet-fever, etc.) it must only be washed by dabbing it gently with a soft towel; in many cases you must simply lay the wet cloth on the skin, hold it down with one hand, and tap or gently rub the skin, over the cloth, with the other hand.

In washing chronic invalids it is well to use water at a lower temperature for the extremities (hands, arms, feet, and legs) than for the body. If, for instance, the trunk is washed with water at 73° F., the limbs may be washed with water at 66° F.\*

If the patient has sufficient strength, he may be washed in a warm room by laying him quite naked on the bed, protected by a linen or woollen cloth; the face, neck, arms, hands, breast, belly, and back may be washed with long strokes, the upper part of the body dried and clothed with

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\* Unless expressly stated otherwise, the temperature is always to be understood as Fahrenheit. For further particulars see under "Thermometer," in the second part of the book.

the warm shirt, and then the lower part of the body dealt with. Or the patient may be laid naked, in a warm room, on a blanket, folded several times, and washed quickly as above, keeping him close to the fire. To wash the legs and feet, once the body has been washed, dried, and clothed with the shirt again, the patient may be seated on a chair.

Again, a patient who is not too weak may be wrapped in a "dripping-cloth." A large, wide sheet is dipped in water at 77—73° F. and more or less wrung out. The patient is made to stand on a woollen cloth or blanket (folded as before), or put in a shower-bath,\* and a second person puts the sheet on him from behind in such a way that the whole body is covered with it from the neck down. The patient rubs his breast and abdomen with the dripping sheet, whilst the other person rubs the back part of his body over the sheet, not with it. The sheet may also be put on by bringing the right corner across the breast from the right to the left shoulder, and the left corner of the sheet in the opposite way. Both corners are then either simply laid across the neck or tied in a knot at the back. The patient is thus completely covered with the sheet behind and before, and it reaches down to his feet. The second person stands by his side and rubs him with both hands, one hand at the back and one in front, over the cloth, not with it, with long strokes, until the sheet gets warm. Then, according to the circumstances, either more water, at a temperature of 73—68° F., may be poured over the patient, who remains wrapped up in the sheet, and the rubbing be continued, or the patient may be taken out of the sheet, have a dry, rough linen cloth thrown over him, and be rubbed until his skin reddens a little. If this treatment is followed, it is very necessary that the arms, hands, legs and feet be also well rubbed under the cloth, and thoroughly dried afterwards.

This operation is called a massage, when the wet, slightly wrung sheet is used without pouring any water on the patient. The chief part of it is the vigorous rubbing. Those who suffer from the chest — if it is advisable for them to use the "dripping-sheet" — must get into bed again and open the window after applying the sheet, for the

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\* The shower bath is a small round bath of various diameters. It has a round border about four or six inches high, to which a nozzle is attached for pouring on the water.

purpose of warming themselves again: other patients would do better to take a little exercise in the open air, as the skin is stimulated by the process we have described to increase its exhalation and absorb more oxygen.

This washing and massage must not take place if the body is cold and shivering. It does not matter whether a man is healthy or sick. Be it noted once for all that there must be no application whatever of cold water — either in the form of washing, massage, wrapping, bandaging, or bathing (either full, half, body, hip, or foot bath) — when the body, or the skin, is cold. Applications of cold or cool water are only to be advised when the skin produces its normal, or more than the normal, quantity of heat. Thus, for instance, in cases of high fever, when the skin changes from hot to cold, it may be necessary to apply a cooling, soothing, relieving bath at one time, and a heating one (vapour bath, etc.) at another. On the other hand, the fact that the body is perspiring need not prevent one from using cold water, in cases where the sweat has not been caused by heating bodily exertion. The warmer and moister the skin is, the more effect cold water has on it.

There are cases in which both methods — the cooling and the heating — must be employed at the same time. Thus, for instance, it may be necessary to cool the heated body, whilst the extremities are cold and need warming (by warm bottles, etc.). Or the body may have to be warmed first by a bed-vapour-bath, or some other application of steam, and the skin be prepared in that way for subsequent cooling treatment, whilst at the same time the heated head — and sometimes the hot hands and feet — may need cooling by the continued application of cold bandages, until the blood is better distributed, and the entire surface of the body has attained a more even temperature.

In order to relieve important organs which are seriously threatened by the intense combustive process in the interior of the body, it may very frequently be advisable to wash the limbs first and deal with the body afterwards.

Thus a great number of circumstances must be taken into account in bathing invalids, if you want to be successful and restore them to health.\*

Other applications of the water-cure are in the form of

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\* See further under "Massage" and "Washing," in the second part.



bandages and wrappings, which are divided, according to their size, into full-length, three-quarter, half-length, abdominal, body, arm, leg, calf, foot, head, and throat bandages. They play a most important part in the water treatment.

The "abdominal" or "Priessnitz" bandage\* is very frequently used. Not only for children, but also for treating all ailments (light or severe) of adults it is the chief element in the domestic "Apothecaries' store" for natural healing. For the slightest ailment of the baby, for every trouble in the child, for all kinds of heating and chronic maladies of children or adults, put on an abdominal bandage. In cases of diphtheria, whooping-cough, diarrhœa, measles, scarlet-fever, inflammation of the lungs in children, etc., the abdominal bandage may be kept on, with brief intervals, during the whole time the disease lasts; and it is also valuable in cases of abdominal and digestive trouble and other diseases in adults. As soon as anybody has cause to fear the slightest derangement of his digestion he should simply put on an abdominal bandage at night, and as a rule he will be all right in the morning. It must be laid on the abdomen sufficiently wide to wrap it well up. You need two rather wide and long towels (well-washed linen of medium coarseness is the best), a pure woollen cloth or a clean-washed woollen bandage, a little wider than the towels, tapes, or hair or safety pins, to fasten the bandage, and fresh clear water at a temperature of 68—77° F. (The temperature should be determined by the condition of the patient.)

For children it is well to use an oldish, clean pocket-handkerchief, a serviette or part of one, or a small woollen cloth, instead of the large towels and the larger woollen outer covering.

The bandage should be put on in the following manner: Take one of the towels, dip it in water, and wring it out fairly well, then lay it round the body so that the two ends may meet and overlap on the abdomen; place the dry towel over the wet bandage, and over both wrap round the body the woollen bandage or woollen cloth made into a bandage, and fasten it with tapes or pins. Each of the three cloths (the wet linen, the dry linen, and the dry woollen one) must be well drawn round, so that no air may get in.

This bandage may be applied in bed, by putting the outer

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\* Also called "Neptune's girdle."



## **Plate II.**

### **Methods of applying water.**

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**Fig. 1. Kidney compress.**

Explanatory text: pages 178, 511 etc.

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**Fig. 2. Spinal pack.**

Explanatory text: pages 178, 511 etc.

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**Fig. 3. Sitz bath.**

Explanatory text: pages 182, 521 etc.

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**Fig. 4. Shallow bath.**

Explanatory text: pages 180 etc., 519 etc.

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*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



*Fig. 4.*





woollen wrapper across the bed at the place where the lower part of the patient's back will rest. Then lay the dry towel on the woollen cloth, and the wet towel on top. If a stronger effect be desired a second wet cloth may be placed over the first. The towels must be of the same width, and adapted to the width of the woollen wrapper. It is as well to have the latter an inch or two broader than the towels.

The patient now lifts his shirt up to his arm-pits before and behind, and lies quickly on the bandage, which should reach from the buttocks to the middle of the back. Then the two ends of the wet cloth are drawn tight together across the belly, and the dry towel and woollen wrapper are drawn firmly over it. The ends of the woollen wrapper may be fastened with tapes, which are best of equal length, or with hair or safety pins, so that in case he is restless during the night the patient may be able to move with his bandage. Then the shirt may be drawn down again over the wrappers, and the bed-clothes put on.

When the patient is too ill to arise, you must first push a woollen wrapper and then a large wet linen cloth, folded three or four times so as to make a bandage, under his back — on which he can lie for a long time even in a state of high fever; then lay on the abdomen one or two large wet towels, folded two or three times, tuck them in at the sides, and cover them well with the woollen wrapper, which was previously put under the back. The wrapper is then fastened as before.

The bandage is generally left on until it gets warm or dry. Then it is replaced by fresh linen cloths. The towels which are taken off must be washed with soap and soda, and aired and dried, before they are used again, as morbid matter and the poisonous secretion of the skin settle in them. Even the woollen wrapper must be washed and aired from time to time.

If it is not intended to put another bandage on, it is advisable to wash the parts with water at 68—73° F., sometimes even 77°, and dry them thoroughly.

The abdominal bandage is generally wide enough to reach from the pit of the stomach to the bottom of the abdomen. If it reaches from the loins to the armpits it is called a "body-bandage."

In using the body-bandage in the case of adults it is usual to take a light woollen blanket for the outer wrapper,

folding it to the size of the trunk, and a well-used sheet for the linen bandage. As in all kinds of bandages, the blanket should be an inch or two wider than the wet sheet (when they are folded), so as to cover it well.

A bandage that reaches from the pit of the stomach to the feet, enclosing the latter also, is called a "half-length bandage." The materials for it are — a wet sheet, a dry sheet, and a woollen blanket. When the feet and legs are included in a bandage, each member must be wrapped up separately.

When the bandage reaches from the feet to the armpits it is called a "three-quarter-length bandage." When the whole body is included, with the exception of the head, it is a "full-length bandage."

Partial or local bandages are put on in the same way as the abdominal bandage: a wet linen cloth, then a dry linen cloth, and a woollen cloth over the two. According to the position of the bandage it may be a "head, throat, chest and shoulder, loin, leg, calf, or foot bandage, or wrapper." The bandages may be dipped in warmer or colder water, may be more or less wrung out, and the inner wet cloth may be simple, double, or manifold, according to the age and constitution of the patient, the nature of his disease, and the effect desired — whether it is to be stimulating, heating, quickening, bracing, or cooling, soothing, relieving, and anti-febrile.

In order to understand the effect of these cool, wet bandages, it must be remembered that they are generally from 18 to 27 degrees below the normal temperature of the body ( $98.6^{\circ}$  F.) When they are laid on the body, or a part of it, raised to a fever-heat, they cool the blood, in the first place, by their direct action on the fine capillaries of the skin, and the blood, as we shall see later on in describing the circulation of the blood in the third part of the work, goes through the whole system nearly twice a minute. Hence, as our nervous system is intimately dependent on the blood or vascular system, this cooling has a soothing effect. At the same time the stimulus of the cold at the surface of the skin causes an acceleration of the local circulation. Our organism instinctively pours a greater quantity of blood into those parts that receive a stimulus. Thus when any part of the body has received the stimulus of cold, the blood immediately flows to it in increased quantity, in order to paralyse

the cold stimulus at once with a beginning of warmth; just as we can also bring the blood more freely to any part of the body by a mechanical stimulus (rubbing, scratching, itching, pounding, slapping, etc.), because the tissue that is destroyed by the mechanical stimulus must be immediately restored by the access of new material. When, therefore, a cool or cold bandage is placed on, the capillaries at first contract under the influence of the cold. The blood is driven out of the skin, but returns after a longer or shorter period, according to the intensity of the stimulus, and sets to work vigorously to overcome the cold and warm the skin once more. In this way a good deal of blood gathers at those parts of the body which have been wrapped in wet cloths, for the purpose of warming the skin again and reducing the cold as soon as possible.

Bear in mind, then, dear reader, that we have two factors to deal with in applying cool, and especially cold, water — firstly, the retreat of the blood from the skin and the cooling that ensues therefrom, the first effect; and, secondly, the return of the blood to the surface of the skin, the second effect, or reaction. The reaction brings back the blood from the vital organs within, which may have been threatened with a plethora or excess of blood.

The wet cloths in the bandage now begin to get warm, together with the skin. The warmth is retained at the skin by the different layers of the bandage in the shape of "moist heat:" the blood now flows freely back to the capillaries of the skin, which open more and more under the influence of the moist warmth. The important internal organs are now relieved of their excess of blood, and can exercise their functions freely. At the same time the morbid, foreign matter, which the body wants to get rid of and which forces its way down to the skin, is loosened and released by the moist heat, and is discharged on to the bandage in the form of sweat through the stimulated and widely opened pores of the skin. As a rule, the cloths are found to emit a most unpleasant smell\* when they are taken off, and the water they are washed in looks muddy and thick.

You will now understand, dear reader, how much healing may be done by means of these wet bandages. As you have already seen in the chapter on "Metabolism,"

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\* Hence Dr. Jäger is right when he says that "a disease is a stink."



the human organism is continually being renewed by the introduction of new and the removal of used-up material. If the bandages are left on for a long time, as is done in cases of protracted illness, the renewal of substance is very greatly stimulated and accelerated by the action of the moist heat (see the chapter on "Warmth"), as the waste material, that has lain so long in the system and was bound to cause disease, is removed, and the construction of new tissue is promoted at the same time. A diseased organ can naturally be the more speedily restored, the more quickly the diseased tissue can be replaced by sound tissue.

Hence the principal effects that can be attained by the wet bandage are — soothing, cooling, the leading of the blood back from the vital organs to the skin, the stimulation of the skin to an increased secretion of the morbid matter that has been broken up and prepared for removal by the moist heat, and a general acceleration of the renewal of substance in the body. As to the way of applying the different bandages — some last longer than others — you will have further instruction in the second part of the work: I shall then go beyond the limits of the present brief treatment, which is only intended as an introduction to the subject of the water-cure.

We now come to the question of baths, which have also a very wide application in the treatment of the sick by the water-method. We have quite a litany of them: "Full, half-body, hip, massage-hip, foot, leg, hand, arm, elbow, head, eye, ear, and mouth baths."

A full-length bath can very rarely be given to an invalid; it is only used in the Kneipp system and in certain special diseases, of which I shall speak in the second and third parts of the work.

The half-length bath is the one most frequently used in the treatment of the sick. It has the great advantage of cooling the feverish, heated body much better than the full bath, as the air and light have complete access to the body whilst it is being taken. It is taken by adults in a bath of about the same length as a full-bath — that is, long enough for one to sit in with the legs stretched out — and from 10 to 26 inches high on one side, but 18—24 inches high at the head. Children may be bathed in a washtub resting on two chairs or on a bench. The bath must be filled until the water rises above the patient's hips. The temperature

of the water varies from 82 — 89 ° F., according to the strength of the patient. The more violent the fever, and the more exhausted the patient, the higher must be the temperature of the water. It must not be supposed that you can do more, and allay the fever more quickly, with cooler water. It is true that a cold bath is very refreshing and quickly reduces the fever-heat, but it also greatly excites the patient, because the stimulus of the cold and the rush of blood to the skin is quite out of proportion to his strength. A very strong reaction inevitably follows, and it is generally too much for the patient.

Taking off his clothes, the patient is now quickly placed in the bath, if he is too weak to get in himself. A second person then rubs his legs in the water with both hands, whilst a third person continually pours the water over his body with a small vessel, and from time to time rubs the skin with his bare hands or with a towel. As the air is playing about the patient all the time, this bath is very cooling, even if the water is very warm. It is continued until the skin of the patient feels cool and supple; the armpits in particular must be felt, and must be cool before the bath is discontinued. As a rule the bath has to last five to eight minutes before the object is attained. Then the patient must be taken quickly out of the bath, dried thoroughly by dabbing in a large linen sheet, put into bed, and well covered up. He should be allowed to rest at least for an hour or two before he is treated again. You will find further information about the half-bath in the second part of the work, in the second section.

You will now ask me, dear reader, how you are to know when a half-bath is needed — you must give it when the body becomes too heated, that is to say, when it reaches a temperature of 101 ° F. or more. (The temperature is taken by putting a thermometer under the armpits or tongue). You must bathe the patient when his skin is dry and hot, and his pulse is too rapid. (Adults have a pulse of about 70—80 per minute when in good health, children 90—100, and infants under one year about 120—130).

The effect of the half-bath is thus explained. When the healthy body is too hot, it begins to perspire, and so cools itself by the outpouring of this perspiration. But the skin of the patient, in spite of its excessive heat, does not succeed in perspiring on account of the weakening of its function.

It is the object of the bath to replace this want of perspiration, and so to cool the body. During the bath the blood flows to the skin, comes in contact with the water, is cooled and returns into the interior of the system. As fresh blood is continually coming to the skin, on account of the circulation of the blood, which, as I said in speaking of bandages, flows through the entire system nearly twice a minute, it is easy to see that a bath that lasts five to eight minutes is enough to reduce the temperature of the whole of the blood, and hence to cool the body, and soothe the nerves that are so much in sympathy with it. The skin is cleaned by the massage during the bath, used-up tissue is demolished by the rubbing, its renewal is facilitated by the attraction of more blood, the pores of the skin are liberated, and the removal of waste matter and the absorption of oxygen find all the doors open in the skin.

After the half-bath, the hip-bath has the largest application in the water cure. It is especially suitable for acting directly on the abdomen and its organs, and indirectly on the entire organism. Special baths are made for this purpose, about 16 inches across the bottom, and about 10—14 inches high in front, rising gradually to a height of 20—24 inches at the back. The patient takes off his coat, lifts up his vest and shirt, lets down his trousers and drawers to the knees, and sits in the bath, which is filled with water up to his navel. As a rule the water is heated to 88—86° F. to begin with. After a few minutes cold water is poured in, so that the temperature gradually falls to 82—77° F. The length of time to remain in it may be 5, 10, 15, or 20 minutes. The hip-bath is particularly serviceable in the case of chronic patients, whose abdominal organs need treatment, or who need a relief to be given to other organs. It is recommended in cases of hemorrhoids, dyspepsia, constipation, stoppage of the cystic veins, liver, kidney, and bladder complaints, men's and women's diseases, congestion in the head or breast, insomnia, vertigo, giddiness, etc., etc.

As in other applications of water, the effect of the hip-bath is to cool, by driving the blood from the vessels of the skin and then bringing about a strong reaction in the shape of a better circulation than before in the abdominal skin. The abdominal organs are stimulated to greater activity, especially if the abdomen is kneaded or rubbed with a rough cloth during the bath, and the attraction of

the blood to these organs relieves other organs — the brain, lungs, etc. — which may have had an excess of it. (For further particulars as to the hip-bath see the second part of the work.)

If the hip-bath is taken in a larger bath, so that the water reaches up to the pit of the stomach, it is called a "body-bath."

As a greater quantity of water is brought into contact with the system in the "body-bath," it has more effect than the hip-bath. Whilst it is being taken the abdomen, from the navel downwards, is rubbed with a rough linen, or jute, or hemp cloth, in order to increase the relieving and bracing effect. The water is generally about 83—73° F.; the bath lasts 15—20—30 minutes.

The effects of the other partial baths are explained in the same way as the hip and body baths. They are either for producing a stimulating and heating, or a soothing and cooling effect on the parts that are bathed; or they are used to relieve other organs by drawing the blood away. (See further in the second part, section II.)

The use of hot vapour plays an important part in the water cure. As I have said before, the application of cold water in the form of washing, massage, bandages, or baths must not be attempted when the body is cold. There is in such cases a scarcity of blood in the skin and the extremities, and you would neither produce the first effect — the driving of the blood from the vessels of the skin — nor the reaction. If, for instance, you were to put a cold bandage on cold feet, or a half, three-quarter, or full-length bandage on a heated body with, in consequence of a bad distribution of blood, cold extremities, the cold feet would only become colder in the wet linen; and, apart from the unpleasantness of the feeling, there would be an increased pressure of blood on the vital organs, which might have very dangerous consequences. Cold feet and hands, and, as a rule, a hot head, as the third member of the company, are indications that the circulation of the blood is wrong. Scarcity of blood in the extremities means excess of blood in the internal vital organs. Just as heated members must be cooled, so cold members must be warmed by the application of moist heat.

The method which is followed in the water cure for conveying warmth to the system, or to any portion of it,



leaves nothing to be desired on the point of simplicity. You fill three earthen ginger-beer bottles with hot water, cork with a small linen rag, wrap a towel, previously dipped in hot water and not wrung out, round each bottle, and then draw a thick woollen stocking over each bottle and its wet towel. One bottle is placed crossways in front of the feet of the patient in bed: the other two are for warming the hands, if these also are cold. The hands are simply laid on the bottles. The moist heat that now develops acts beneficially on the cold extremities by causing the blood to flow back from the distant vessels into the capillaries of the hands and feet; the nerves, which had been, as it were, paralysed by the cold and want of blood, begin to be active once more, and in a short time the circulation is restored to its normal regularity; the feeling of discomfort gradually disappears, the heated head grows cooler, and the pressure of blood on the internal organs relaxes as it flows out to the extremities. Thus the organism regains its capacity for reaction, so that we may now carry out the process of healing by cold bathing, etc.

It would take too long, dear reader, to go fully here into all the different kinds of vapour baths, etc. I defer this "pleasure" until we come to the second part of the work, where I shall also fully describe the various kinds of douches, etc. This chapter, you remember, bears the title: "A Brief Glance at some Forms of the Water-Cure and the use of various kinds of Baths." I do not think you have any cause for complaint, my good reader. I have given you a long treatise instead of "a brief glance," and so it is quite time we turned to the next chapter, so that you may know in good time what is the real difference between health and disease.

## 20. Health and Sickness.

Health is the natural, and disease the unnatural, condition of man. If a man wants to fulfil the end of his existence, he must be healthy. Man has not an exceptional position in nature: he is a natural creature. But all creatures that are in their natural condition are healthy — that is they are in that condition in which all the vital functions continue without the least derangement. Hence a man is not healthy unless all his faculties of body and mind work freely,

and the various organs of his system faithfully accomplish the tasks that nature has set them. The food taken, for instance, must have a definite and natural proportion to the material that has been used up and excreted in the life-process: the absorption of oxygen by the lungs and skin must be regulated, in virtue of certain laws, by the formation of carbonic acid and its removal from the system; in a word — if we wish to be well in mind and body there must be a certain harmony in the life of both.

The foundation of this harmony, health, means the normal construction, proper nourishment, and the maintenance of our organism by means of a free, regular renewal of substance. As long as this circulation goes on within us, we live: its cessation means death. As long as it takes place freely and regularly, we are healthy; if it is retarded or interfered with, we fall ill. Every man, then, who wants to preserve his life and his health, must make it his chief object to maintain this circulation of material at its normal rate. As you already know, dear reader, the process consists in a continual change of the substance of the body, or a perpetual renewal and removal of the material it is composed of. It requires certain conditions for its continuance, called the "conditions of life," such as — air, light, water, heat, food, etc. Hence all the elements of which our body is composed, and which we constantly need for its construction and maintenance, may be called "means of life." Like man, all living things on the earth (animals and plants) have been formed from a tiny germ out of materials which are found in the surrounding organic and inorganic worlds.

Therefore health, or a regularity of the life-process, can only be secured with the help of suitable food, proper formation and distribution of blood, free circulation of blood at the skin and exhalation therefrom, generous absorption of oxygen, and discharge of carbonic acid, regular renewal of the tissues, and removal of the waste, reasonable alternation of exercise and rest, etc.

Health alone gives us the full and proper use of our powers of mind and body, and of all the pleasures that nature produces for us; health is the foundation of all earthly happiness; health is wealth.

When a man's healthy condition, which makes itself known by a certain feeling of comfort, is disturbed by any, even the slightest, cause, he becomes ill. According to the

degree of this disturbance we distinguish a great variety of diseases of a lighter or severer character. Even the tendency or disposition to illness, which may be hereditary, congenital, or acquired, and which makes the organism an easy prey to disease, must itself be accounted a morbid condition. Besides these "disposing causes," the outbreak of illness may be traced to "accidental causes" — for instance, a chill, excitement, a shock, etc.; to "remote causes," or such as are only general in their action and only remotely influence the outbreak; and, finally, to "indirect causes," such as, infection, wounds, fractures of bones, etc. The causes of disease are just as numerous and varied as is the general action of the outer world on the human organism.

The "symptoms" of disease are certain visible changes which take place during an illness, and which are perceived by the patient himself and those about him. It is natural that a man should only begin to consider himself unwell when he perceives certain external or internal changes in his system, which were not there before. These changes or phenomena may be felt as unpleasant or painful sensations in some part of the system (subjective symptoms), or a certain organ may be conspicuously modified in its action — the heart, for instance, in case of palpitation (functional symptoms); or obvious irregularities may arise, in respect of form, extent, consistence, or colour, in one or other part of the body, one or other organ, or in the whole body (for instance, larger or smaller abnormal growths, tumours, swellings or new growths in the interior or exterior of the system, eruptions of light or dark colour, etc.) (physical or material symptoms.)

Not infrequently we find all three of these kinds of symptoms (subjective, i.e., personal or self-perceived — functional, i.e., affecting the action or function of an organ — and physical, i.e., according to natural teaching) co-operating in an illness, or we may find only one of them in evidence.

The sum total of all the chief indications of illness perceived is called the "complex of symptoms," and it is this that gives the character to the disease.

The causes of these symptoms of disease are to be found, as a rule, in the deviation of an organ, tissue, humour, etc., from its natural character. Pathologists call this state an anatomical or organic disturbance.

If we seek, further, the "causes of these causes," that is to say, the origin of this irregular condition, we find that the circulation of substance in the organism has gone wrong. Hence we may say that disease is a defect or an irregularity in the renewal of substance. Disease is nothing more than an abnormal life process which makes constant progress, and is subject to laws that control the body in abnormal circumstances. Changes in the tissues and organs, which have been brought on by the irregularity in the circulation, and which have become permanent, are called "organic defects," to distinguish them from progressive diseases.

According to the part of the system in which a disease breaks out, and the extent to which the body is drawn into sympathy with it, we distinguish four kinds of diseases: "general diseases," which affect the entire system equally, without any particular part of the body seeming to be diseased: "local diseases," in which particular parts or organs are especially drawn into sympathy, and at the same time, of course, the entire organism is affected: "external diseases" that affect external parts, and "internal diseases," when the "seat of the disease" is internal.

Pathology, "or the science of diseases," further distinguishes: "sympathetic diseases," the symptoms of which are perceived in different parts of the organism than the organ which is really diseased: and "idiopathic diseases," the symptoms of which appear precisely where the disease is.

The "course of disease" varies according to the circumstances. We distinguish:

"Acute diseases," which are of a violent character, and do not last long, and

"Chronic diseases," which last much longer, sometimes many years.

There are, moreover, "periodic diseases," which return at certain intervals, such as periodic fever: "typical diseases," which always break out afresh at certain regular periods; "intermittent diseases," in which the symptoms entirely disappear at certain times and return in a violent attack or paroxysm: "remittent diseases," which have alternate periods in which the symptoms increase in violence and then relax their dangerous character.

Every acute disease runs through certain stages from its commencement to recovery. We distinguish: a "period of



incubation," in which the outbreak is preparing, but there are no visible symptoms, or very rarely symptoms, of disease: a "precursory stage," in which, for instance, there is restlessness, loss of appetite, increase of internal heat, or slight feverishness: the "outbreak" of the disease: the "increasing stage:" the height or crisis of the disease, in which it is at its worst: then the "decreasing stage," and finally the "convalescent stage."

The conversion of one disease into another generally happens in one of two ways. If the disease entirely changes its form or nature, the conversion is called "metaschematism," or transformation.

If a "general" disease becomes "local," or vice-versa, or if the seat of the disease is removed to another part of the system — in other words, if there is a transference of the disease from one organ to another — it is called "metastasis" (i. e., transference).

When the disease takes a turn for the better it is said to have reached its "crisis." It is, therefore, also called the "crisis" of the cure. This is a condition in which there are certain indications that nature is endeavouring to regain health, and that its efforts will be successful. The critical condition may be of various kinds. Its symptoms may take the form, for instance, of an outbreak of perspiration, an evacuation of the bowels, qualities of the urine, an eruption in the skin, suppuration, bleeding, etc.

As diseases are of various origins, different names have been given to them according to their origin. Thus we have: "hereditary diseases," which descend from parents to children: "congenital diseases," which were contracted by the child during the mother's pregnancy, and brought into the world with it: and "acquired diseases," which have been caused by external morbid influences. Then there are "primary diseases," which have been directly contracted from external agencies: and "secondary" and "tertiary diseases," which are regarded as consequences of the primary ailments. There are also "infectious diseases," the origin of which may be traced to the transference of specific infectious matter: "epidemic diseases," which attack a great number of sufferers at the same time, and which consist in a sort of contagious principle which is diffused by the air, or the origin of which may be traced to miasmatic exhalations from the ground, the rivers, etc., or to the drinking of impure water, etc.: "endemic

diseases," which owe their origin to unhealthy habits of life on the part of a whole population — as, for instance, the plica (a disease of the hair) — or which develop in a certain locality on account of its climatic conditions — as malarial fever. Diseases which only break out in isolated cases amongst a community are called "sporadic".

No disease arises of itself. Every single malady requires a cause to produce it, either some injury that is done to our system from without, or an internal agency. In many cases it is impossible to discover the cause of a disease: the same cause often produces very different diseases in different individuals, and sometimes the same disease is caused in a number of people by very different agencies.

In the chaos of opinions, hypotheses, and learned contradictions as to the origin and nature of diseases, the famous physician of the natural treatment, Louis Kühne, has given us a most valuable light by his epoch-making discovery of "the unity of disease." He explains the origin of every kind of disease by an accumulation of foreign matter in the organism, which settles there for a longer or shorter time, in this or that organ, in greater or less quantity, and so causes a corruption of the humours, disturbance of the circulation, and changes in the structure of the body, until at length some external agency — the releasing force — irritates the body and throws the morbid matter into fermentation. The process of fermentation which is thus set up is the disease that breaks out. Kühne does not admit the existence of a perfectly healthy man. Looking from the stand-point of the humoral and materialistic pathologists\*; — the former of whom take the liquid contents, the humours of the system, to be the starting-point of disease, and the latter the solid portions of it — Kühne says: "Every man — there are very few exceptions — is, owing to the unnatural conditions of modern life, chronically ill, and more or less burdened with foreign matter. The effort of nature to rid the system of this foreign matter is seen in the outbreak of an acute malady, which is really a critical stage in recovery."

Von Grauvogl, the famous homœopathist, also explains the nature of disease as a change of the nourishment or the

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\* The materialistic pathologists are further divided into cellular and neutral pathologists.

functions of the organism, caused by external agencies. For no body can change its condition by its own force. Every change, therefore, is only the succession of two opposed conditions of the same organism. Disease is not merely an idea, but a fact, arising from material causes, which continue to act as long as the conditions for their activity are present in the organism.

Hence, as the "incubating period" of a disease is generally regarded as "health," Dr. Jäger, the distinguished hygienist, expresses himself as follows: "In the strict, narrower sense," he says, "it may be affirmed that no man is really healthy who is accustomed to live in impure air, especially to sleep in it — that is, in bedrooms with closed windows — and to use dirty clothing and bedding (and to eat unclean food! Author). That this is not merely hair-splitting is clear from the fact that people carefully distinguish between two conditions with regard to illness: in the first case they say "there is something wrong in him," and in the second case, "he is ill," or "a disease has broken out." Hence illness has two stages (apart from any previous taint), a "hidden" and incubating stage, and an "active" or "open" period, the former preceding the latter. This is by far the commonest form of disease, and, indeed, the form that has caused, and still causes, the most confusion of ideas. For, as a rule, this incubating stage is called "health," though it does not take much to distinguish one of these people, who has "something in him," from a really healthy individual, and often enough the patient assures the doctor and others after the disease has "broken out," that he "felt for a long time there was something in him that ought to come out." Yes, the man is quite right; this stage precedes the majority of maladies,\* and it is just in this that the misunderstanding exists. As a rule, people blame the influence that determines the "outbreak" of the disease — that is, its passage from the "hidden" to the "open" stage — as the "cause" of their illness.

It is inconceivable how many errors and blunders there are amongst the people, especially with regard to health. Let me transcribe here an article from the pen of the physician of natural treatment, G. A. Selss, which appeared in a German periodical.

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\* This refers, not only to infectious diseases, where it has long been recognized and known as the "period of incubation," but also to colds.

**"The Science of Facial Expression."\***

**"On some supposed Signs of Health."**

"What is health? you ask me. Our new science of health\*\* teaches that health is nothing else than the freedom of the body from foreign matter, whereby it enjoys the full vigour and capacity of all its organs. In this sense civilisation can scarcely produce a single healthy individual; every one has observed the presence of foreign matter within himself, even if it were only by a cold in the head. And I say — however paradoxical it may seem — that a man who is thus chronically burdened with foreign matter is the healthier in proportion to the frequency and violence with which his system provokes critical stages, and the more diseased the less he is exposed to such crises, that is to say, the more stubbornly he retains the morbid matter in his system. By this definition of 'healthy' and 'diseased' we throw a great light on the very beneficial character of 'acute disease' — which means a removal of morbid matter from the system — and on the prejudicial nature of 'chronic' — which means the retention of it in the body. However, as it is not so easy to change the meaning of the English words 'healthy' and 'diseased,' we shall have to take the current phrases into account. I shall try to make the difference between 'healthy' and 'diseased' a little clearer, by showing, with the help of a few observations from daily life, how much that is usually taken to be 'healthy' is really the reverse."

"It is the common opinion that thickness, roundness, fulness, and redness of the body are signs of health and strength. Let us examine this popular belief in its application to various parts of the body."

"A full neck is always bad, whether it be in front or behind, excessive or moderate. A full throat points to a bad digestion, whether the hanging mass be soft and loose — forming a 'double chin' — or tense and hard; the mobility of the neck is always more or less hampered by this fleshy accumulation, which in its deeper layer generally takes the

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\* The title lends itself to a good deal of misunderstanding. Let me briefly remark in explanation that, as is clear from the following, the features of the entire body, taken together, form the basis of the new system of diagnosis; but that, as the head and neck are always free, they offer a convenient indication, and, since we have found by experience that they faithfully reflect the morbid features of the whole system, a very safe indication of disease.

\*\* The system of Louis Kühne. (Author.)



form of hard knots. If you point to this as a sign, in a particular case, that a man has a bad digestion, you are often told that he has a good appetite and a regular action of the bowels, and so cannot have a poor digestion. You must reply that it is not a question whether the proper quantity of food is taken and a certain amount of waste matter excreted at certain intervals, but what nourishment the body has derived from the food taken and how it has been able to use it. This use does not depend merely on the chemical composition, but also on the physical and mechanical qualities, of the food. Digestion can only proceed in its normal fashion when the quantity and quality of the food correspond completely to the physiological capacity of the digestive system. Thus, for instance, the food must not be liquid or pulpy, because it could not be masticated. A careful mastication of the food is necessary for the purpose of thoroughly mixing it with saliva, which is a digestive process of no less importance than those that take place in the stomach and intestine. Hence liquid foods, such as soup, etc., are unnatural and unsuitable for a man who is provided with a set of teeth; a man who lives naturally and eats plenty of fruit can do without drinking altogether. Then again, the food must not be entirely made up of 'digestible' aliment — that is, food that passes directly into the humours of the body — but must also contain 'indigestible' elements, which materially assist the process of digestion. If the food is badly chosen in any respect, it is true that the physiological capacity of the digestive system will, apparently, gradually adapt itself to the improper food, but the result is a deranged condition of the whole system, a condition which manifests itself, as we know from experience, in the abnormal shape of the neck that we mentioned above."

"A thick neck at the back is an unmistakeable sign of nervousness: it points to headache, noises in the ears, imagination, restless sleep, spinal trouble, and mental disease. It shows that the congestion of foreign matter is increased at the back, from the back-bone towards the sides and from the head downwards: sometimes it is so great that the roof of the skull is prolonged behind, or even over the forehead, in two side protuberances (known as 'horns')."

"A brown or red colour in the neck, generally at the back, is not by any means always the result of exposure

to the weather and a healthy life in the open air, as it is, for instance, in the case of peasants, fishermen, and sailors. We can tell the cause of the colour by pressing the finger on that part of the skin. If the part pressed changes colour so that the print of the finger is visible, the colour is not healthy, but is due to an inflammation of the abdominal organs: a healthy colour shows no trace of the finger."

"Full cheeks, so frequently associated with a fulness of the neck, and which are sometimes noticed in children, and even babies, are not a sign of health, no matter how chubby and glowing the cheeks are. This is also due to digestive trouble, generally in consequence of an hereditary defect, which, joined to too great a fulness of the body, causes the unnatural fulness of the cheeks. A particularly ominous sign, also noticed in children sometimes, is a swelling that stretches from the bridge of the nose to the cheek-bones. A pressure in the abdomen that forces the foreign matter upwards, past the ears and towards the cheek-bones, where it forms the swelling."

"Red cheeks are generally taken to be a safe indication of health; however, people go too far in this respect also, and do not distinguish with regard to the extent and the intensity of the redness. If, for instance, it is not evenly distributed and gradually spreading equally in every direction, but consists rather in a small spot of bright red right on the cheek-bone, which does not gradually fade away, but has a sharp border, it is an ominous sign of disease which can only be averted by careful, judicious, and continuous study of one's health; in pronounced cases it is a sign of dangerous trouble in the lungs. Many a one carries these fatal signs — which are not unjustly called "church-yard roses" — on his cheeks for years, and passes for healthy on account of his colour, and then comes to an early grave, because, as it seems, some fatal disease like "galloping consumption" has suddenly set in. No disease comes suddenly: it is always the outcome of long preparation, a long mismanagement of the body. May these lines serve as a warning to many people, and help to induce them to take precautions."

"A redness that spreads over the whole of the face, which is always found in a number of people, is also often regarded as an indication of exceptional strength; similarly when it is visible on the arch of the chest. However, this

redness is only a sign of constant inflammation that burns in the head or breast; when it is seen on the head it means discomfort, restlessness, noises in the ears, head-ache, and "nervous excitement;" on the breast it means congestion in the bronchial tubes. Bad digestion is also once more a source of the evil. A pressure with the finger will, as before, infallibly distinguish between a healthy and a morbid colour."

"Women and girls generally imagine that a full and prominent bust indicates good health, and they can secure the appearance of it by artificially building up the figure. From this notion has sprung the evil habit of wearing an instrument of torture called a corset — a habit which is also æsthetically repugnant to all taste that has been formed on the beautiful models of classic antiquity. It is made to press tightly on the body over the hips and to squeeze the flesh in towards the breasts so as to make them stand out prominently. The consequence is a permanent deformity of the body which is violently forced out of its natural shape and functions. If they would only learn to regard this artificial prominence of the bust in its true light — as an unnatural development of the frame, as a disfigurement, not an improvement, of the body and its classic outline — we should see the last of this effort to secure an injurious condition of the body for the sake of appearance, and of the barbaric tyranny of fashion that directly or indirectly claims thousands of victims. Those who wish to fight this development of fashion must first of all apply themselves to extirpate the radical prejudice and clear away the false notions that are responsible for the wearing of the corset. Then they will find the evil decreasing much more rapidly before their efforts."

"The man who can take food and drink, luxuries and stimulants, in any form or to any extent that he likes, without any unpleasant consequences, is generally regarded as a perfect type of good health. But if you take the trouble to observe such people for some time, you will find that this supposed ability to bear any amount of overloading of the stomach with food and drink — which is sometimes regarded as a joke by young people — rarely lasts long; on the contrary, a tedious illness generally takes the place of that supposed indestructible power, and it cannot be cured without a return to a natural diet, though it may be concealed,

with the aid of drugs, as far as people who cannot read physiognomy are concerned. The healthy stomach has the natural capacity of defending itself against food that is injurious, in point of quantity or quality, by eructation, vomiting, evacuation, flatulence, or pain, and thus warning its possessor against continuing or repeating the injurious food. But if a man will not be warned, if he continues to abuse his stomach in the same way, that organ will come at length to accustom itself to the injurious element; that is to say, it will lose its power of warning in the way we described."

"Those who are not particularly concerned about their bodily functions, but merely think about them in the usual superficial way, and sacrifice all reflection on them to their convenience, will be rather pleased with this change, and will speak of it to others as a strengthening of the stomach. A healthy stomach — one that is sensitive to every defect in food — is regarded as a weakness and a burden, an inconvenient critic of those luxuries that a man likes best, and in order to take which with impunity he is prepared to destroy the fine sensitiveness of his digestive organs. I myself was at one time, through the current prejudices and want of knowledge as to the care of the health, in danger of causing this deadening of my organs, when I was reminded in time, by returning to a natural diet, that a stomach that is sensitive to every fault in our food is too precious a thing to be sacrificed thoughtlessly to the prevalent irrational customs in food."

"A 'strong' body is anything but a proof of health. In the phrase itself we have the source of the popular error of taking 'strong' and 'stout' to be the same thing. When the outline of the body expands in a tense curve from the breast downwards, there can be no question of a normal action in that part of the body. Either the stomach is distended, or there are large deposits of fatty and foreign matter over it, or both evils are present. All tightness at the abdomen is a bad sign. A normal body has a depression immediately under the breast-bone, stretching as far as the navel, called the pit of the stomach. The part of the abdomen that lies underneath this depression should never be tense and hard, even after a meal, but should always be loose enough to lie in folds, if only slightly. That is the only healthy appearance for the body."



"Again, we must characterize as unhealthy a white, spotless skin over the whole body, though it is a source of pride to many a man or woman. In point of fact, the white colour is merely a symptom of disease, of the suppression of the function of the skin. The skin is choked up by the quantity of foreign matter deposited under it; it is cut off from the blood-stream, and rendered incapable of fulfilling its functions of excretion and respiration. The skin passes less and less matter through its pores, perspires very rarely and with difficulty, and has the questionable reputation of being always dry, clean and colourless — much to the gratification of its possessor. The result of this suspension of the respiration through the skin is to overwork the lungs and induce disease in them. The consequence of the suppression of the skin's excretory function is felt in painful and malodorous discharges from the different openings in the system. The condition we are describing goes by the name of 'chlorosis,' and is the inevitable result and accompaniment of the whiteness of the skin, which is thought so much of as a 'delicate complexion.'"

"Another and much commoner mistake comes to light sometimes when you speak of a man as unhealthy; he often replies, 'But I have never been ill.' This assertion would only be justified if the man's system were perfectly free from foreign matter. As this condition is scarcely ever to be found in the circumstances of modern life, the assertion is generally unjustified. What is usually called sickness is a state in which the system is attempting to rid itself of the foreign matter; and the cure will be all the quicker the more there is of this waste material that can break up and discharge in a short time."

"The truth of this assertion is proved by the feeling of comfort that one experiences after a violent fever — a comfort that is, unfortunately, only too quickly sacrificed by falling back into the old injurious habits. If there were no foreign matter in the organism, there could be no such things as 'fevers' and 'diseases.' If, on the other hand, an excessive quantity is present, a circumstance which is best indicated by the neck, we can only regard as an unfavourable symptom a long delay in the outbreak of one of these acute periods or healing crises; for either the body has no longer sufficient energy to provoke one of these crises, and so must remain in sickness, or sooner or later

the outbreak will come with such violence that it may easily destroy the organism. It is clear, then, that the frequent occurrence of these crises or fevers in the case of a man whose system is overloaded with this foreign matter is an advantage, and a means of warding off more serious illness. Still people must be warned, with regard to such cures, that they must never force these crises artificially, as beginners are inclined to do for instance, by an excessive use of vapour-baths, etc. Because the organism may be reduced by these artificially hastened efforts and unable to meet all that is required of it; it then either suffers considerable injury, or at least the way is prepared for serious trouble, which would have been avoided if the system had been in better condition. All unnecessary pain must be avoided, not only for the sound reason that it means an injury to the system, but also in order to ward off those troubles which many find unavoidable in the course of a cure, in spite of all prudence and moderation, and which must be mastered with courage and perseverance by every man who wishes to be healthy."

"Strong muscles are by no means an invariable symptom of health. Most people cannot believe for a moment that muscular power and health are not synonymous, yet the two are by no means inseparable. An exceptional and one-sided formation of muscle in the arms or legs can only be obtained at the cost of other parts of the system, and especially of the nervous system, as is strikingly seen in the case of athletes. From another point of view, to have thick and fleshy limbs is, like everything else that is unnatural, far from handsome, and disturbs the equilibrium of the system; for such irregularities are not caused by natural and well-balanced, but by artificial and one-sided, exercise for a special purpose. The body always sends most blood, and therefore most building material — and with it most morbid matter — to those parts of the system which are most active. Hence if the same organ is persistently exercised, its muscles are bound to get thicker and out of proportion to the surrounding parts. In this process there is no social action amongst the members for the health of the system. A real equilibrium of the system, however, may be regarded as such a social force: for health and beauty are identical. The eye that is accustomed to the true proportions of the human frame will at once detect such deviations from the normal shape, even

if they were only in the fingers and toes, as sometimes happens with the muscles of a professional athlete; the eye of the present generation can scarcely do this, because in the almost universal loading of the system with morbid matter true symmetry has been lost, and with it has gone the correct eye for it. It is a fact that in some of the finest statues and busts that modern art produces, and even in some of ancient date, the man with a true standard of normal figure can detect morbid deformations which were not recognized as such even by the sculptor himself. Is it surprising, then, that the vast majority in modern civilized states are so very much wanting in a sense of the normal shape of the body? We must, perhaps, look for the true types of beauty in remote antiquity, or else in nations that still live a perfectly natural life — as, for instance, in the Cingalese, who have been exhibited in Europe occasionally, and who live on a vegetarian diet in their own country: their figures are sometimes perfect models.”

“These illustrations show that not only the modern idea of ‘health’ and ‘disease’ is very vague, but also that people are very easily satisfied on the score of bodily welfare. There is a great want of sound instruction in matters of health amongst the people, and knowledge of the means of prevention which one learns from the science of true bodily form — a science which has only recently been applied for practical purposes of healing by an able and observant physician. Happily, this science is not the mere subjective opinion or feeling of an individual, but a science of objective value that may be learned, and that has in point of fact been already learned by a number of pupils. I trust I have shown by these illustrations from daily life how much popular belief is opposed to the results of this science, and have also pointed out a field on which we have enough to do to struggle against prejudice.”

Thus writes C. A. Selss. It has given me great satisfaction to be able to put before you this instructive article from the pen of the courageous and distinguished representative of the “new science of healing.” Has it not astonished you? What you have hitherto regarded as the most welcome and most valuable proofs of health and strength are nothing else than — deception — disease. The health of the present generation is really a whitened sepulchre. With all our high civilization we are in a state of undeniable

degeneracy. The life of both body and mind is diseased in consequence of the unnatural conditions that have gradually crept into our existence and settled there. We live too hurriedly, too artificially; we wander too far away from the rules that nature has given us; and the finer, more fashionable, luxurious, and refined our life is — especially in the large towns — so much the more artificial and unnatural it is.

A glance at our surroundings soon proves it. Look at our houses, in building which we are particular about usefulness, and convenience, and comfort; how widely removed they are from what a man really needs! We look first of all for prettiness and show and effeminacy, only secondly for practical use, and last of all to the requirements of health. What is this "comfort" that is so much sought in houses but effeminacy. We cut ourselves off as much as possible from the fresh air, from the healthy and invigorating influence of its oxygen, and from changes of temperature that would harden us, and healthily disturb the equilibrium of the system.

We put on armour against the atmosphere in the shape of our clothing and bedding; and in these again we do not consider use and necessity and the requirements of hygiene so much as, in the case of clothing at all events, the commands of omnipotent fashion. Nowadays if anybody clothes himself according to his individual taste and needs, and according to rational, hygienic principles, he is considered eccentric and weakminded, and made the butt of jokes and ridicule. The result is that a man needs a rare amount of courage and perseverance to live according to his own opinion and needs and conscience nowadays.

What do we eat and drink? Spiced and daintily prepared foods and alcoholic drinks, calculated only to narcotize (stupefy) and inebriate the nerves and senses. A plain, strengthening, nourishing, mainly vegetable diet — such as is best for the health, which makes people sound, restful, intelligent, and vigorous — is rarely to be found, only in a rapidly vanishing middle-class. People who are supposed to be "educated" seek daintily-prepared, well-seasoned dishes, which have to be varied continually for the system to tolerate them. Meat predominates in their diet, because their enervated, nervous constitutions can no longer endure a plain, wholesome, solid diet — leguminous fruits, cereals, good whole-meal bread, and refreshing, blood-purifying fruit. And the



indulgence in meat necessarily leads to an indulgence in spirits. (See the chapter on "What must we Drink?")

How do the majority of our "educated" and "better" classes spend the day? They sleep during part of the day, and turn the better part of the night into day. Professor Reclam recommends (see the chapter on "Recreation and Rest") those who wish to be healthy and contented to distribute the day into three parts — eight hours work, eight hours recreation, and eight hours sleep.

And in what form is it best to take this recreation? If your work is mental, the recreation should consist in walks in the open air, in brisk exercise carried to the point of perspiration, which quickens the action of the skin, promotes digestion, refreshes and invigorates body and mind. If your work is corporeal, the recreation should take the form of stimulating mental exercise. But what do most people do? They try to steal as much as they can from their eight hours of work and eight of sleep to add to the eight hours of recreation; and instead of devoting the latter to bright, healthy, stimulating enjoyments, they spend it in unhealthy and exciting amusements. Open air exercise is restricted to a short 'constitutional,' or a promenade up and down the main street, for the purpose of staring and being stared at; the air that is so necessary for health is found in overheated theatres, music-halls, and such places, full of tobacco smoke, liquor-fumes, human effluvia, etc.; they take their "recreation" in stuffy public-houses, which they visit frequently during the day, and remain in until late at night.

Many of our so-called "educated" people try to find a substitute for walks in the fresh air — that imperative need of our nature; they ride and drive, play cricket, croquet, and tennis, row and cycle. In most cases these are only make-shifts, because fashion and other artificial motives are at the bottom of what ought to be a wholesome exercise; and we must not forget the number of "drinks" that these pastimes generally involve — the good effect of healthy exercise is generally paralyzed by an acute alcoholic poisoning."

I could spin out this subject for ever, but I think I have said enough, dear reader, to show you how it is that there is so much illness about, how it is all kinds of diseases are spreading so much, amongst all classes, and especially in the "higher" and "better-off" class. The first and commonest sign of this unnatural condition is the prevalence of

dyspepsia; that leads on to disturbance of the circulation, hemorrhoids, chlorosis, nerve-disease, scrofula, tuberculosis, etc.

Such are the blessings (?) of civilization. Sickness is the inevitable result of the crowding together of people in large towns: it is the consequence of our present social and economic "order." Let us do all we can to reform it by returning to a natural manner of life. All hands on deck! Everyone, from the highest to the lowest, must do his best, by beginning to regulate his life and his conduct according to natural laws. How truly does Max Nordau say, in his "Conventional lies of civilization:" "Nature teaches man that he cannot live without the soil, that he needs the green field as the fish needs water. People see that they decay when they cut themselves off from the land; that the peasant alone continues to thrive, to be healthy and strong, whilst the town dries up the marrow of its inhabitants, makes them sick and sterile, destroys them beyond salvation after three or four generations; so that in a hundred years every town would be a grave-yard without a solitary living person in it, if the dead were not continually replaced from the country. Yet they continue to desert the country and make for the towns — to turn their backs on life and embrace death."

## 21. How can we protect ourselves from Disease?

"If cold and heat, storm and rain, are your enemies, you owe it to your unfriendly disposition towards them. Make peace with them, and they will be your friends. They will harden you, strengthen you against morbid influences, fill you with energy, self-control, and joy of living."

Long before civilisation had appeared the iron law had lain on humanity for thousands of years: "In the sweat of thy brow shalt thou eat thy bread." Strenuous manual labour in the fresh air, in wind and cold, rain and sunshine, was the chief task in life of uncivilized man, bracing his physical strength, and endowing him with energy and health.

Civilization has changed all that. Water, steam, electricity, have displaced human manual labour, and robbed the majority of the civilized community of their natural vocation. Bodily work has become a burden, is not fashionable amongst "edu-

cated" folk; mental occupation is thought much more valuable and respectable, and the mental development of youth — with a side glance at their bodily training — is the supreme object of the pedagogue.

Many of us regard work as a disagreeable incident in life; we consider comfort and stale pleasures and sensuous enjoyment as the chief end of our existence, and think that to lighten and curtail our labour as much as possible is a hygienic and humanitarian duty.

With the gradual change of a healthy, natural way of living into morbid artificial customs, the spring of health has failed more and more, and the bed of the happy, rippling brook of joy and pride in life has gradually dried up. The more or less enervated constitution of civilized man is incapable of withstanding all the injurious influences which play upon him unceasingly through his ignorance and neglect of nature's laws. His system is hampered in the true exercise of its functions; sickness and disease are the inevitable consequences of his perverted way of life.

Nor will it be otherwise with our children and children's children, when we do not know how to protect them, from the day of their birth, from all the evil influences that restrict each of their organs, and consequently their entire organism, in their development; when we are unable to impress deeply on them, and weave into the tissue of their flesh and blood, the supreme principle of hygiene — that man has no special place in nature, and is no complex work of art, but is the product of his planet, the earth; an organism quickened in all its parts, created on independent laws that live in him; a creature that grows and dies, whose several parts are intimately connected, who is in closest relationship with the great universe, and therefore is just as much subject to the laws of nature as is the whole of creation with its organic and inorganic worlds.

The best protection against disease for us civilized men is to acquaint ourselves with these laws of nature — live according to them in order to secure health.

As I have already, in the early chapters of this book, enumerated the conditions which are necessary for maintaining health, in connection with food, clothing, bedding

and housing, and described the effect of air, light, water, heat, exercise and rest, etc., on the human frame, I need not go into those questions again. I have exhaustively shown how a man must live in order to preserve his health and avoid disease. Hence I choose the nature of disease as the subject of my present chapter, intending to point out afterwards the dangers that threaten us through our shrinking from "supposed evils," and give certain protective rules for guarding against the encroachments on our health and that of our children of the dominant allopathic medical faculty, which have not had the least share in causing the present sad plight of humanity, and have occasioned endless unhappiness, misery, sickness and disease.

For that is the sorest point in our miserable social condition — that a man is no longer master of his own body and those of his children. As fast as people strive on the one hand to promote the health of the community by rational hygienic reform, measures are being passed, on the other hand, worthy of the long-buried Inquisition, which undermine all the good done, and which the individual cannot escape without coming into conflict with the authorities and being severely punished. I am thinking principally of compulsory vaccination. The state, which should have, and has, the greatest conceivable interest in the excellence of the health of its citizens, injures that health, in a way that avenges itself bitterly in a decay of the whole community, by enforcing the practice of vaccination,\* in ignorance of the baneful effect on the human organism of such a "foreign poison" as calf or cow-lymph, on the advice of high medical authorities. But we shall deal with this matter more fully later on. Individuals, as I have said, are no longer free to protect their health in this important respect, when the whim of an ignorant magistrate is against them.

As I have already explained in the chapter on "Health and Disease," a man is only healthy when his system is exposed to the free and regular action of natural laws. Man lives under them and through them; they control his existence.

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\* In view of the attitude of innumerable magistrates towards the "conscientious objector" it cannot for a moment be said that there is no compulsory vaccination in England. (Trans.)



Like all that nature has produced, he is intimately related to all his fellow-creatures, and is dependent on them in many respects. From the organic and inorganic worlds, from the animals and plants, the air, water, etc., he receives the material that is necessary for his existence, and suitable to his nature and his wants; he consumes it and makes it a part of himself, whilst, in "the eternal cycle of nature," he gives back continually a portion of his independence to his fellow-creatures; returning at his death as a part into the great whole, and so fulfilling that saying of the Bible: "Dust thou art, and unto dust shalt thou return."

These phenomena or manifestations of the life-process show a certain regularity in their course; and, just as the human organism is intimately related to the surrounding outer world, so the different parts or organs of the system are intimately connected with each other.

When, therefore, one organ is diseased, the close relationship causes other organs, and even the entire system, to suffer. If, for instance, something is wrong with the stomach, heart, lungs, throat, eye, ear, foot, or even one finger of the hand, the trouble is not confined to the one member, leaving the other organs of the body intact, but the whole frame is affected and drawn into sympathy with the malady, through the close interdependence of all its parts. When one part of the system suffers, there is no member that does not suffer with it; though sometimes, on account of the peculiar condition of the human nervous system, a local derangement is not "communicated" to the brain in connection with the simultaneous trouble of the entire organism, and so is not perceived as a general illness.

With regard to these processes in the living human body, the professional medical faculty, the allopathic, "scientific" school of medicine, rests on a false foundation, and therefore is not in a position to cure disease. It regards the human organism as a machine, as a mechanical construction of bones, muscles, nerves, flesh, fat, blood, etc., in which each part may be repaired separately when it has gone wrong.\*

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\* Hence the practice of "specializing" on particular organs. . The specialist, who is particularly devoted to the repairing of a single organ in the system which has contracted disease, should be able to treat it with more accurate knowledge than a doctor who has not chosen any special organ for his study,

But the human body is, as we said above, an organic construction; every single organ in it can and ought to be regarded and treated only as a necessary part of the whole, and in closest relationship with it. However, the professional faculty has never been quite clear as to the mechanism or organism of the life-process in the human body.

This false idea of the mechanical working of the human frame has led our "scientific" physicians to a perverse and grossly materialistic conception of the character of disease. They conceive disease to be a sort of foreign invader, just as when some foreign object is let into a machine, and throws it out of gear and destroys some portion of it. Probably the immense quantity of physic they pour into the sick would be justified on this ground — either to serve as oil for lubricating the machinery, or to effect some other improvement in the solid parts of the frame!

The following characteristic feature shows that the human body is not a mechanical construction. The organism has life, and has it in itself — never through a second organism. Machinery has no life. The peculiar indication of life, motion, is only imparted to it by a force from without, a force that lies outside of and beyond its structure. This essential distinction is too little regarded by our "scientific" physicians. In their extremely narrow views, which rest on a materialistic basis, they conceive all the vital processes in a purely material-mechanical way — as they do, for instance, the process of digestion. They say: "The material of which the human body is composed must be supplied to it in the same form for its sustenance: iron gives iron to the system when it is taken, blood makes blood, etc." Whereas it has been completely established, in harmony with the laws of physiology, that the organic digestive apparatus changes not only the form but the nature of the food submitted to it for digestion, in virtue of its special properties and structure, and only in this way prepares it for assimilation into the system.

On disease our "scientific" doctors have most extraordinary views — sometimes none at all or very contradictory ones. A professor of world-wide reputation, Dr. Rudolph Virchow, once explained that disease was merely an "idea." If he really believed this himself, allopathy has no logical right to give medicine for the relief of disease; we do not fight "ideas" with drugs.

The famous Virchow says, humorously enough: "Pathology is the science of physiology with impediments," that is to say, "the science of disease is the science of health with impediments;" and on another occasion he says: "The process of diseased life may agree in essence with that of normal life, but may be greater or smaller, or it may have a quite different result, which, however, would be normal only for another part". Professor Virchow, one of the greatest lights of medical science, thus established by his remarkable words the category of "healthy diseases," in making the products of normal life agree in essence with those of diseased life. (Dr. Katsch.)

In opposition to his previous conception, and in direct opposition to the materialism that rules medical science, Virchow has recently declared that diseases are not mechanical but dynamical (dynamis is the Greek for "force," "vital action") phenomena. Medical science often makes such leaps from one extreme to the other; that is the manner of the "progress" of "higher" science, which you and I, dear reader, cannot understand, because we are not scientific people. If we acted as these learned people do, we should be considered brainless, irrational, and unprincipled. However, in higher medical circles, these marvellous leaps are called "science." This particular instance will suffice for the present. I shall detain you with a number of these "scientific" performances in the chapter on "Healing by Drugs, and its evils". With such confused notions of the nature of disease in the head of a single authority — and he one of the lights of medical science — our professional doctors go on prescribing medicine every day, prescribing it in — as I shall prove in another chapter — complete ignorance of the effect of drugs on the human body, yet in large quantities. "Difficile est satiram non scribere" — it is hard to avoid being ironical. Now to the point.

The real nature of disease consists in the accumulation in the body of foreign matter, which is of no further use for its structure and sustenance, and which has not been removed at the proper time by the excretory organs, the intestines, kidneys, skin, and lungs. This foreign matter comes from a variety of sources: partly because a man eats more than he needs for the replacement of used-up material, and partly from taking food that is unsuited to his anatomical

structure and physiological faculties, such as the stimulants mentioned in the chapters on "What should we Eat?" and "What should we Drink?" alcoholics and narcotics and tobacco.

Then again, the poisons that are sold at the chemist's as "remedies," of which I shall treat in a later chapter, and that are introduced into the system during illness, settle in it as "foreign matter." But above all we must mention the "lymph" with which people are inoculated as a precaution against the dreaded smallpox by our professional doctors; it is "foreign matter" and a source of disease of the first importance. To use the words of an able hygienist and clever writer, Lothar Volkmar, "it is this 'vaccination poison' which has turned a bright, strong, prosperous, healthy energetic people, by a law of the realm, into a nation of pale, sickly, nervous, restless, weak, gloomy, pessimistic, inactive, miserable, utterly unhealthy individuals, and that has decimated our children, and caused the frightful spread of that family horror, diphtheria."

Then there are the pernicious pollutions of the air, the miasmatic exhalations which we breathe every day, partly through our own fault and partly against our will, in the streets of large towns, in our badly ventilated or entirely unventilated living and sleeping rooms, in offices, shops, school-rooms, court-rooms, music-halls, theatres, restaurants, public-houses, and so forth; they permeate, and poison through and through, every nerve and fibre of our body, and then settle in the system as "foreign matter."

Finally, as you have read in the chapter on "Metabolism," the human organism is continually wearing away. It uses the food that is supplied to it for the nourishment and formation of its organs, and the latter are directed to the discharge of their respective functions; these organs are so constantly in action, that they would be gradually used up by the combusive process (metabolism) if they were not well supplied with nutritive matter. The waste material (used-up tissue, products of combustion, etc.) not being removed from the system, as the excretory organs of the "civilized" human organism usually work very defectively, remains as foreign matter in the body and becomes a further source of disease.

All the foreign matter which has been deposited in the system in consequence of a too rich or otherwise unsuitable diet, of a poisonous administration of medicine or lymph, or



of an impeded metabolism, and has settled there because the excretory organs were unable to remove it, partly on account of the weakness of their action, partly on account of the excessive quantity of foreign matter, and partly because it has entered into an intimate chemical combination with the substance of the body — all this foreign matter settles for the most part in the abdomen, that is, in those parts of the system to which it first hastened for the purpose of finding a way out through the excretory organs, the intestines and kidneys.

But the abdomen is not the only place for depositing the foreign matter. According to the physical law of gravity, and according to the position and attitude mostly taken by the subject in question, the "foreign matter" settles sometimes in front, sometimes behind, sometimes to the right, sometimes to the left, now in one organ and now in another. No part of the system escapes it; it penetrates right to the extremities, and settles in the head, the hands, and the feet. Anyone who has suffered such a deposit generally has a sensation of cold and shivering, a twitching in the limbs, a general feeling of discomfort, and a mysterious restlessness; he perceives in himself all the general symptoms which precede heating and acute illness.

The "foreign matter" deposited in the system is putrefying or fermenting matter. Fermentation is undoubtedly a form of putrefaction set up by the decomposition of some organic substance. The foreign matter remains a longer or shorter time, according to the constitution, strength, and habits of life of the patient, in its deposits, until at length the "releasing force" comes, some external or internal cause, a great heat, a chill, a change of air, excitement, and so forth. By this means the foreign matter is set in motion and fermentation, and, like all fermenting material, it seeks an outlet from the enclosing space, pressing towards the head and the skin, according to its position and the ways that are easiest for it in the interior of the body. If it finds an impediment in the channels it has taken, it either spreads over the system, causing some kind of new growth (a swelling, polypus, cyst, emphysema, goitre, etc.), or settles in the lower extremities, the legs and the feet. But it always shows a tendency to get as far away as possible from the part it was deposited in, and to make for the most distant portions of the system, the hands, feet, head, and neck. Here it is

arrested, because the skin will not pass it. The skin, in consequence of neglect or perverse habits of life, is either rendered utterly inactive and its pores are choked up, or it still discharges its function to a certain extent, but is quite incapable of removing at once and sufficiently the rapid and excessive pressure of fermenting matter. It is this pressure and rush of fermenting substance towards the skin that causes in fever patients the well-known straining and stretching of the skin, and the redness and heat of the extremities.

"If the whole skin is willing and able," says Lothar Volkmar, "only a light fever follows; the sickness is generally not dangerous, and ceases of itself without doing further injury, as measles generally do. If the skin is only partially capable, the fever is worse and the illness more dangerous, as in the case of scarlet fever. If it is quite suspended in its function, diseases are caused, such as diphtheria, before which the medical faculty is helpless. For if the work of the skin be not forced in time by the opening of its pores, the fermenting matter, being unable to find a way out, turns inwards, and chokes, grinds, heats, and finally burns up the vital organs. In this way the throat and the larynx are especially threatened, for, when the skin fails in its function, and the intestines and kidneys are sluggish or inactive, they offer the only outlet for the morbid matter to adopt, after permeating and saturating all the other parts of the system on its way up to the throat."

Chronic ailments are nothing else than the suppression of this fermenting process by improper treatment, dosing with drugs, etc. — that is to say, acute ailments in which the fermenting matter has been incompletely, or not at all, removed from the system. As long as the system retains its power of reaction — its fermenting capacity — it is in a state of chronic illness, always making a fresh attempt to discharge the foreign matter, in harmony with its natural laws. Usually, however, the treatment of the professional doctor frustrates this effort of nature; in his complete ignorance of the nature of disease, he can only suppress, but not cure it. The results naturally do not last. The morbid matter, continually deposited afresh in the body, and increased by the addition of new, makes the system more and more ill and miserable, and at length deprives it of all that remains of its power of reaction. A violent, obscure, continuous fever sooner or later consumes the inner vital organs, and leads to certain

premature death. Instead of attributing such a death to "the inscrutable designs of Providence," as people do, they should recognize that one more victim has been sacrificed to "scholastic folly," "medical superstition," and an illusive authority. The poor man died in a firm, unshaken belief in the "omnipotence" of the medical faculty, and in the apothecary's drugs as the "only means of salvation." Even his long sufferings and his increasingly miserable condition could not for a single moment shake his child-like trust in the virtue of "scientific" treatment and of the ever-varying drugs that were poured into him. "Verbum sap," as Latin scholars say — "A word is enough for the wise."

Just as in acute diseases so in the case of chronic ailments, new growths are caused in the interior and exterior of the body; the internal growths are especially in the throat, larynx, nose, abdomen (polypi in the uterus or ovaries), etc. "It is a general law of organic life," says Volkmar, "that heat will cause new growths in organic structures when there is moisture present and fermenting matter." The skin impedes the passage of the fermenting matter just as much in chronic ailments as in acute diseases, and the other excretory organs are just as sluggish and irregular.

Chronic maladies can only be cured by driving them from the interior to the exterior, that is to say, by making them acute once more. This takes the form of a "crisis," a "healing crisis" or "healing fever." Hence a distinguished physician has said: "Give me a means of producing fever and I will cure any disease."\*

If, therefore, you make an effort to cure chronic invalids by a treatment that is intended to drive out the foreign matter, you must induce them to pay very careful attention to the "healing crises" that arise, if you do not want them to be worse than before. When a chronic disease is restored to an acute stage, the crisis may take an immense variety of forms, from the lightest to the severest. The lightest form is often no more than a feeling of discomfort, joined to an increased exhalation and perspiration. But a crisis may always be increased, even to the highest fever with its manifold symptoms. Acute illnesses, that is, as you will now know, dear reader, healing crises, which a man has endured before, but which were not cured (by removing

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\* That is to say, "chronic." (Author.)

the morbid matter), but merely suppressed and made chronic, appear again during a course of treatment, and in that case the healing crisis takes the form of a repetition of the earlier illness. An inflammation of the lungs, or kidneys, etc., again sets in, to be now cured by a proper treatment which will thoroughly cleanse the system of its morbid matter. The longer the time since the first acute illness, the longer will the crisis take to set in during a proper course of treatment, which in reality is nothing else than what we have called a "releasing force." If a man has suffered an acute illness, that has been suppressed instead of cured by medical treatment several times during his life, he will have several successive crises to endure, supposing that his system has not been rendered incapable of reaction by the sickness remaining after each of his uncured diseases. The first healing crisis will take the form of his last acute illness, the second crisis will correspond to his last illness but one, and so on.

Thus there arise crises, for instance, which take the form of illness lasting for a whole week, or even a month. There are also crises that may have a fatal result; either because the system has become so weak under its burden of foreign matter that it is no longer able to bear the severity of the healing crisis, and its vital spirits droop under the influence of the reaction that sets in, or because the crisis is once more foolishly suppressed, perhaps by improper (medicinal) treatment. It would be very wrong, however, to be afraid to face a cure on that account. It is possible, after a careful examination, to tell any patient whether, in the course of a treatment for expelling the foreign matter, he will experience a severe or a light crisis, or several crises in succession. That can be told from his general condition; and when the system is fairly strong, and the cure is conducted with prudence, it is always safe to count on a favourable issue of the crisis.

These crises are always connected with material excretions. In each of them there are considerable discharges of a perceptible morbid matter. They consist, partly, in an evil-smelling exhalation from the skin, increased up to the point of perspiration, and frequently associated with an eruption on the skin — an exhalation strong enough to affect the olfactory nerves of the patient and of those about him; and they are partly indicated by an inflammatory con-



dition of the mucous membrane, which gives an increased mucous secretion, in a flow of blood (hemorrhage or hemorrhoids), and in a special activity of the intestines and kidneys.

Hence the assertion of the "great" Dr. Virchow which we mentioned above — that "disease is a purely dynamic phenomenon" — is, we shall make bold to say, extraordinarily weak. Disease comes of "material" causes, as we have seen, and as we perceive every day with our nasal organ, because sick people — if you will forgive the word — stink. The room they are in smells badly, and all who are in it are "poisoned" by their exhalations. This state of things is much worse when the patient and those about him have not the courage to leave one or more windows open in the sick-room night and day. It is not only a question of removing the noxious matter from the body by means of the air, but still more of letting plenty of fresh air into the room to replace the bad air, saturated with infectious matter, so that it may not be breathed again.

The cutting off of the patient from the fresh air is the keeping off of one of those "supposed enemies," of which I spoke at the beginning of the chapter. As we have already seen, disease is not a dynamic phenomenon, arising in the vital forces of the organism; its source must be sought in a morbid matter that is a poison.

"What is poison? Poison is everything and nothing," says Dr. Jäger; and he continues, "Any kind of matter may become a poison; you have only to concentrate it sufficiently or take a sufficient dose of it. A man can poison himself with common salt if he takes enough of it. On the other hand, it may be said that nothing is poisonous, because you can make any kind of stuff so thin and watery that it becomes harmless; otherwise people would be poisoned by a single dose of physic, because medicines are poisons when moderately concentrated.\* Hence poison is a matter of quantity or concentration, and the question is: Have we a satisfactory means for determining what is poisonous and what is not? I answer, yes; we have such a means in — the nose! Every object is poisonous the moment its emanation causes an unpleasant sensation of smell, and as long as it does not do that — that is to say, as long as the impression it makes on the olfactory nerve is agreeable — it

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\* To concentrate means to thicken or strengthen. (Author.)

is not poisonous. Poison is whatever smells or tastes badly."

But we must also deal with the qualitative aspect of the question, What is poison? A man can poison himself by means of foreign poisons, that is to say, by absorbing from without — either through the respiratory organs or the digestive apparatus — material that is too concentrated, or that becomes too concentrated by continuing to take it for a long time. If, for example, there are arsenical colours in the wall-paper, we gradually contract arsenic poisoning just as lead-workers contract lead poisoning, metal workers verdigris poisoning, potash workers potassium poisoning. But the more important point is that all the matter that the system gives off from the skin and the lungs can act very poisonously when it is sufficiently concentrated; we may call this kind of poison "self-poison," in opposition to "foreign poison." That is, the stuff with which people vitiate the atmosphere they are in, etc." Dr. Jäger's "self-poison" and "foreign poison" are what we have spoken of as morbid matter, foreign substances, products of combustion, the remains of physic settled in the system, etc. The "foreign matter" is found in the organism both in a free state and in combination.

Free "foreign matter" is more easily absorbed by the exhalations from the skin and the lungs the purer the air is about a man; but the more the air is loaded with human effluvia (as in houses and other buildings without proper ventilation), so much the more concentrated is the free part of the foreign matter in the system.

"Foreign matter" in the "stored up" or combined form can only be set free by what we have called a "releasing force" (a change of temperature, excitement, a suitable healing treatment, etc.), and that involves a feverish, acute, quickly-passing condition — a healing crisis.

As the subject is of extreme importance, and very few of my good readers may be well informed about it, at the risk of being diffuse I must return to the question of the nature of disease, and deal again with the storing of foreign matter in the human organism.

I have already described in the present chapter the accumulation of foreign matter in the system, owing to a too rich or unsuitable diet, the breathing of bad, consumed air, the failure to remove waste matter and the products of

combustion, and the assimilation of medicines (cow or calf-lymph, arsenic, mercury, opium, etc.). But it is not sufficiently realized that, according to the distinguished physiologist, Professor Jäger, our body itself produces and stores up a poison — what he calls the self-poison.\* We have to explain this physiological process in the same way as the storing of oxygen in our system whilst we are resting and during the night. (See the chapter on "Recreation and Rest.") As you saw in that chapter, dear reader, the oxygen is fixed and stored during sleep, but not consumed during that period. The oxygen is not used to form carbonic acid and water during sleep; but when you awake it is there fixed, and it is in this accumulation of oxygen that the bracing and refreshing effect of a sound sleep partly rests.\*\* The system has taken in a great quantity of unused oxygen; and this gradually becomes free, and joins itself to the fresh oxygen which is taken in at every breath in waking hours.

During the day our body develops "self-poison" unceasingly. It produces it especially during digestion; and if a man is taking exercise in the open air, the poison leaves the body and evaporates into the atmosphere. But if one is in an enclosed room or some other kind of "human stall," and the giving off of the self-poison, or carbonic acid, into the atmosphere is impeded, the development of the poison does not cease, but continues, and the poison settles in the system. Just as a healthy man is "loaded" with oxygen when he awakes in the morning, so a man who remains for a longer or shorter time in bad air is impregnated with self-poison; he suffers to some extent from "carbonic acid poisoning."

Hence we have in our body in this carbonic acid a new source of disease, which, in conjunction with the foreign matter that has accumulated in it from causes we have already dealt with, considerably alters the normal proportions of the living substance of the body, which, as we explained, is composed especially of albumen, fat, and water. In consequence of the poison lodged in them, the tissues absorb water, and are more and more saturated with water and fat;

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\* The storing of the self-poison is a storing of carbonic acid. See further under "Carbonic Acid," in the contents.

\*\* Hence how necessary it is to breathe good, fresh air during the night, and how much injury those people do themselves who sleep with the windows closed.

the quantity of albumen in the system is reduced, and the body gradually sinks into a thoroughly morbid and enervated condition — it is ill.

Amongst the great number of “releasing forces” — the agencies which throw the foreign matter in the system into fermentation, or, in other words, cause the passage of a disease from a latent to an open condition — the most important is pure atmospheric air. People then generally call the illness that breaks out a “cold,” or attribute the source of the illness to a “chill,” not only because the first thing they noticed about it was a cold sensation and shivering, but also because very often the releasing influence of pure air has been strengthened by cold, wind, storm, or rain.

Here we come to the real reason why cold and stormy weather, and the fresh air that is always associated with them, are so carefully avoided by “room-sick” people, and all who are unaccustomed to exposure to the air from one cause or other. All men who are forced by their occupation or by other circumstances to spend the greater part of their lives in enclosed rooms are heavily laden with foreign matter. They feel themselves that, as Professor Jäger says, there “is something in them,” and in spite of their dread of fresh air they are more and more driven into the open air by an instinctive craving, until some fine day the disease breaks out. Then they blame the air for causing their illness. They are quite right, though not in the sense in which they conceive the illness they have contracted; they take it to be something complete in itself, a foreign intruder into the system, a “dynamic phenomenon” of some sort.

That the stay-at-home should be upset by the effect of good, fresh air is nature’s revenge; nature never lets a sin against her laws go unpunished. If a man is continually, or only with brief intervals, in bad, impure air — and that may happen in the best ventilated rooms, as people unceasingly poison the air with their exhalations — if he has improper clothing and bedding, so that the exhalation is interfered with, the foreign matter settles down more and more within him, until from some cause or other a new process of fermentation is set up in his system.

The air plays a most important part as “cause of fermentation” or “releasing force,” but its influence is no less indispensable for the purpose of allaying fermentation.



No disease can be cured without fresh air. It is true that a disease — that is, a fermenting process — can be suppressed in bad air, but it cannot be cured. A disease that has been “cured” in such a way really continues until some happy circumstance provokes a new healing crisis. Fortunately, the conviction is gaining ground, even amongst our “scientific” physicians, that fresh air is even more important for the sick than for the sound. At all events the treatment of the sick and wounded in the Franco-Prussian war dealt a blow at the prevailing views of medical men as to the “dangerousness” of fresh air in the sick-room, when a famous physician gave forth the “scientific” opinion that it was better for a typhus patient to lie in the street than in the hospital.

The power of fresh air to drive out morbid matter is clearly seen on a visit to the institutions for curing by good air. I have myself often noticed, during my connection with the natural healing institute called the “Oltenstein Baths,” at Schwarzenberg, in Saxony, in the midst of the mountains, how much refreshed and strengthened the men and women from the towns, who came for cure or summer rest, seemed to be on the very first day of their visit, by the pure air, full of ozone, of the forests and the mountains. But after a few days there was a change. Most of the “townsfolk,” impregnated as they were with all kinds of foreign matter and isolated from the miasmatic, impure air of their towns and houses, were laid up — some more and some less. The fresh air of the mountains, free from all impurities, had promptly done its duty as cause of fermentation, in the way we have seen, and caused a sharp crisis (healing crisis), which was sometimes very badly needed.\*

As a rule those people act most foolishly who, when a crisis breaks out during their visit to one of these establishments, immediately pack up and return to the evil atmosphere of the towns. In this way they suppress their crisis — that is, fermenting process and disease — and only increase their previous illness. But those who persevere with the treatment, and let the air do its best to allay the fermentation, will find themselves much healthier than ever

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\* In these healing institutes, which are also “air institutes,” the crises are generally quickly got over with the help of the other natural healing agencies at hand, such as water, warmth, diet, proportionate exercise and rest.

when the crisis is over, and will feel that something has been dislodged from their system that had settled in it.\*

Hence it is not incorrect to call these outbreaks of illness at curative establishments, which are mainly used for recovery and "setting people up," "recuperative crises." The need of being "fixed up" merely means that a man has reason to be dissatisfied with his bodily condition. He feels languid, tired, out-of-sorts, disinclined to work, exhausted in mind — he feels "there is something in him." Recovery consists in expelling the foreign or morbid matter from the system, and it always takes the form of illness, which may be light or severe, brief or otherwise.\*\* The chief means of provoking this recuperative crisis, and so of assuring recovery, is fresh, pure air — also the chief means of hardening the system. (See the chapters on "Air" and "How must we Harden our Children?")

Besides air, such healing principles as light, water, heat, diet, exercise, rest, etc., play a very important part in this treatment for bracing and establishing the system. Either individually, or intelligently associated, they first cause a fermentation of the morbid matter, then allay the fermentation by expelling the foreign matter through the excretory organs, and finally strengthen and brace up the system to an admirable degree.

Therefore I strongly advise you, dear reader, when you

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\* It is not everybody who seeks a change of air — that is a better air than he has been accustomed to breathing — that experiences one of these crises at first. Nervous people, especially, do not experience it, that is, such as are nervous in the strict sense of the word — whose nervousness is not mainly the reaction of some material change or an anatomical disposition.

\*\* Dr. Jäger explains the critical phenomena that are set up by the influence of fresh air in the following way: "Foreign and self-poison may be in two forms — in combination or in a free condition; in the latter case they follow the laws of steam-pressure. When the pressure of the poisons in the atmosphere in which one lives is reduced — the same effect as may be produced with an air pump when one wants to deprive the blood of its oxygen — it may also have the effect of releasing the self-poison. That happens, for instance, when people who have loaded themselves with self-poison in a bad atmosphere pass into the pure air of the woods or the mountains, so that their exhalation may take place freely — that is to say, the free portion of the self-poison becomes thinner and more attenuated. Then follows the release of the stored-up self-poison. They get what we may call from one point of view, a feverish cold, and from another point of view a healing crisis; because if they bear it properly and the release is complete, they become healthier than before."

visit one of these curative establishments upon the mountains or at the sea-side for the restoration of your health, or when you set out on a voyage for the same purpose: Never forget that you cannot cure your chronic malady unless it is first transformed again into an acute illness. When once a man has lost his health it does not come back again very easily, but must be fought and vanquished. For disease is not a foreign intruder in your organism, as I have said several times; it consists in the accumulation of morbid matter which has settled in your system in consequence of your ignorance or neglect of nature's laws, and can only be cured by a more or less severe struggle of your constitution with the fermenting matter. Hence perseverance and patience are important requirements in a course of treatment. Do you think you have them? Very good! Then off you go to some institution in the mountains or at the sea-side, and promise me that you will bear the first crisis bravely and not give in at once. The victory is only won by fighting. So, courage and success! And if you return purified, refreshed, thoroughly set up, and vigorous, to your business and your domestic duties, then follow the motto of this chapter: "Continue the friendship you have made in the course of your treatment with your former enemies — especially the air — so that you may not need a second course of treatment."

I now come to a part of the subject of this chapter from which I am almost inclined to restrain my pen in sorrow. I mean compulsory vaccination, which has embittered and so strongly agitated so many of us who regard our health and that of our beloved children as an inviolable treasure, and who cannot understand how such official invasions of the individual are permitted in this enlightened nineteenth century.

It is only too sad a fact that the vaccination of children and adults with cow or calf-lymph is one of the chief causes of most of the diseases and the decay of modern humanity.\*

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\* As far as the history of vaccination with animal matter, as a protection against smallpox, is concerned, I will only quote the following: Smallpox, like cholera, comes from India, where the rise of such epidemics is favoured by the excessive dirt. When it first came into Europe cannot be accurately determined. It is certain, however, that the plagues of the twelfth and thirteenth centuries were epidemics of smallpox, and that the crusaders in particular suffered much from this disease, which was then considered a pestilence. In the last century smallpox was still very prevalent; it was not until the present century that, owing to the perfecting of our

When vaccination was made compulsory in Germany in 1874, the law was based on two reports of the "Royal Prussian Scientific Deputation." These reports are summed up in the following four items:

1. The number of deaths from smallpox has considerably diminished since the introduction of vaccination.
2. Vaccination gives an immunity from the disease for a number of years.
3. A repetition of the inoculation extends the period of immunity from the disease, and gives a still surer protection against a fatal attack.
4. There is not a single established fact that proves inoculation to do any injury whatever to health.

But experience, down to the present day, has proved precisely the contrary of these important theses of the unfortunate law. We see in it a sad illustration how "scientific errors" in medicine may have the most frightful consequences, menacing the health and life of thousands of people with grave peril, as soon as they attain general application through the sanction of the laws.\*

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sanitary arrangements, the disease was considerably reduced, not only in countries that had compulsory vaccination but also in others. In the years 1870, 1871, and 1872, there were terrible epidemics of smallpox in Germany, in spite of compulsory vaccination, and innumerable deaths. In Prussia alone about 64,000 people died of it in 1871. In Bavaria more than 30,000 caught it in 1872, and of these more than 29,000 were vaccinated. The medical faculty is quite powerless against smallpox down to the present day, although they made so much of inoculation as an "effective" weapon. Instead of that, the ravages of the disease have only been very slightly diminished.

At the beginning of the present century, an English village-surgeon of the name of Jenner invented "cow-pox vaccination," in the belief that the inoculation of a man with the stuff that exudes from cow-pox protected him from smallpox, and the disease could thus be radically exterminated. In the course of time vaccination was to be made compulsory in England, Germany, and other countries. In England "conscientious objection" is now supposed to relieve from the law, but the daily journals show how misleading the opinion is.

\* In the course of the trial of an anti-vaccinator in Germany for writing that "vaccination is always syphilitic poisoning." Dr. Crüwell, of Berlin, was summoned as a witness. He gave the following testimony on oath: "Every inoculation with vaccine is a syphilitic poisoning." When you vaccinate a healthy child, its axillary glands swell and the tonsils are inflamed and swollen; in the case of women and mature girls the milk glands dry up



When we consider the real character of this inoculation against smallpox, we find that it is intended to protect the human body against the disease by injecting into it a quantity of animal pus. That this is an erroneous assumption and a perverse proceeding of our medical men, causing incredible injury to health, is clear not only from a man's healthy condition, but also from a correct knowledge of the nature of disease and of nature's laws. When a healthy man asks what he must do to preserve his health, we answer at once: "Keep your blood pure by careful habits, because it nourishes all your organs: every nerve and fibre in your body is fed by it. Wash and bathe frequently, use rational clothing and bedding, take open air exercise proportionate to your strength, so as to harden your system, and make it strong to resist morbid influences, and so to avoid disease."

Quite otherwise do our professional medical men advise us how to avoid disease — in this case, smallpox. They prescribe: "If you want to avoid smallpox, take some animal pus, make a few incisions in the upper part of your arm, and inject the morbid animal matter into them!"

When you read in old books, dear reader, that several centuries ago, quacks and old women used to prescribe "devil's dirt," and similar things to patients, you are astonished at the superstition that was then so rampant. But what happens in our own days? When you have watched over your beloved child with the greatest care, and bathed it every day to keep it clean and healthy, the medicine-man of

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just as in syphilis. Ever since I have known the Peczel ocular diagnosis, I have been in a position to establish with certainty that the vaccination trouble is of a syphilitic character. Most men have to endure it all their lives. In passing the vaccination law the government has fallen into an error with regard to the nature of smallpox. It was thought that cow-pox was a different thing from smallpox. But it is now proved that there is no such thing as a pox that is peculiar to animals. Neither in bulls nor oxen has pox ever been observed; it is only in milk-cows whose udders have been touched by human hands that the disease has been found. There is no animal disease that affects only one sex. What people call cow-pox are syphilitic ulcers or true smallpox, which has been given to the cows by the unclean hands of the milkers. Jenner owed his lymph to the diseased hands of his syphilitic dairy-maid, Sarah Nelmes. Hence vaccination does nothing else but spread one of the most loathsome diseases.

the nineteenth century comes along (unless you have been able to wring a certificate of exemption from a prejudiced magistrate), cuts into its little arms, and injects a poisonous substance into the wounds, so that it may remain — healthy! Are you not astonished? No, perhaps not, because you know well that in this century that loves to call itself “enlightened,” there is indeed freedom in religious matters, but by no means in medical matters of this kind, which the state has taken under its authority. Listen to what the anti-vaccination society of Dresden says in one of its pamphlets:\*

“But it is still more pitiful that the infallibility of our medical pontiffs has been accepted up to the present, and has even exercised a pressure and tyranny over those who do not believe in it which may be compared with any page in the history of the Inquisition.”

You thought you could shield your child from contagion of every kind with that safest and most natural of all hygienic and preventive methods, cleanliness, but the vaccinating officer — perhaps with the aid of the policeman — will teach you differently. He takes your child, cuts its arm 6, 12, 18 times — as many as he likes — and puts some filthy stuff into it which the witches of the Middle Ages would certainly have called “devil’s dirt,” but to which our scientific physicians give the high-sounding name of “lymph” or “vaccine.” What kind of stuff this lymph is may be gathered from the words of Dr. Böhm:

“The liquid that trickles from the sores of a vaccinated child is taken, and put into an inoculating lancet, and with this long shallow instrument cuts are made in the belly of a calf. After four days the whole belly-surface of the calf, especially just round the incisions, is highly inflamed and saturated with an inflammatory exudation. Then the belly of the animal is scraped with a sharp hook. You can imagine how the victim of vaccination trembles and howls with pain; sometimes the sore skin is the most delicate and sen-

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\* I beg of you, dear reader, in your own interest and in the interest of the whole community, which suffers much from the infliction of inoculation, to join the Anti-Vaccination Society, or at least to buy the “Anti-Vaccinator” every month. I maintain that you are under an obligation to support such an association, when you are reminded by the sufferings of your own children of the curse which is attached to vaccination, as long as it is legally enforced.

sitive part of the animal. The filth that is thus scraped off is the chief element of the vaccinating lymph. It consists of horny cells of the epidermis, torn shreds of lymph, putrid lymph, blood-serum, blood, putrid blood, particles of pus, capillaries torn off in the scraping, and ptomaine poison. This first mixture for vaccinating purpose varies somewhat; sometimes it contains more blood and more pus than a liquid taken from another calf. Then four to six times the quantity of glycerine is added to dilute this 'calf's cream,' and the lymph is ready for inoculating."

"And when you ask in horror, 'But will this dirty stuff not injure my child?' the vaccinator replies, 'O no, not at all, it does no harm; on the contrary, it is very healthy and will protect the child from smallpox.'"

"It is true there are physicians who think otherwise. Dr. Weiss, of Neuenburg, cries out in despair: 'I ought to be hanged on the highest pine in the Black Forest in punishment of the evil I have so long done to the poor people by vaccinating them.'"

"And Professor Jung, M.D., of Basle, writes: 'To my infinite pain I only learned in my later years that inoculation is not only no blessing, but is a real curse to humanity.'"

"And Professor Kranichfeld, M.D. (of Berlin), writes in the "Kölnische Zeitung": 'I myself had my fourteen children vaccinated at a time when I was not conscious how injurious it is. To-day I would oppose the magistrates and the police.'"

"But how is it that these men of science dare express a different opinion than that of the majority of the profession, in spite of the severe penalty that is exacted of seceders by this caste?"

"O, if you had ever stood beside the sick-bed, or the bier, of some one dear to you who had been poisoned, murdered by vaccination — if you had ever seen the tender brow and the fresh rosy cheeks of your darling child covered with horrible eruptions, its body deformed with hideous pustules, the bones rotting in its hands and feet, its teeth falling out; if you had seen the unfortunate victim lying helpless, not knowing whether to live or die in its misery — You would ask rather: 'How is it that more doctors, that all doctors, do not condemn vaccination?'"

It would be impossible for me to warn you against this

legal enormity more impressively than is done in this pamphlet of the Anti-vaccination Society. Experience teaches, and facts prove it, that vaccination has by no means reduced the mortality from smallpox, that it has no connection whatever with it. Smallpox owes its origin and its spread mainly to uncleanness and to unnatural, unhealthy habits of life. Hence in those states in which strict attention has been paid to preventive hygiene and sanitary arrangements, the number of smallpox cases has diminished and the mortality from the disease been reduced. Whereas, in those countries in which there is still much to be desired in the way of hygiene and sanitation, smallpox has raged more or less severely. The condition of the people at the time with regard to vaccination has nothing whatever to do with the virulence and the spread of the disease. The only point of importance, as I said, is the general health of the people. The best proof of this is found in the smallpox epidemic of 1870—2, which ravaged the “well” vaccinated provinces of Germany even worse than the neighbouring provinces which were “insufficiently” inoculated. In Bohemia, for instance, people were vaccinated and re-vaccinated in a most rigorous application of the laws. The epidemic was no less violent in Bohemia on that account, or rather, it was more violent on that account, because the inoculation had made the people thoroughly diseased and unable to resist its attacks; whereas in the Canton of Zürich, in “free” Switzerland, which abolished compulsory vaccination in 1883, there was only one single death from smallpox from 1887 to 1891. Vaccinators often appeal to the health of the German army in support of their claim: Every man is vaccinated (for the third time) when he joins the army, and so the alleged exceptional health of the troops seems to tell in favour of inoculation. But Lt.-General Spohr has shown in the “*Neue Heilkunst*,” on the strength of 48 years’ experience and observation, that tuberculosis is very rampant in the army and that it can only be traced to vaccination.

“On the other hand,” he says, “in the year 1881 the vaccinating officer at Cologne, Dr. Schoppe, has drawn attention to the fact that the immense number of cases of scrofula (which is substantially identical with tuberculosis, and most frequently marks its commencement) which appear in children immediately after vaccination are not to be attributed to a transference from other victims of



vaccination, already suffering from scrofula, but are the direct outcome of the trouble which is set up by the purulent process of vaccination sores in the lymphatic vessels. That is strongly confirmed by the circumstance that frequently out of a number of children who have been vaccinated with the same lymph the weaker ones become scrofulous, whilst the stronger regain their health when the sores heal. The French vaccination officer, Dr. Perron, of Bordeaux, has had the same experience to a very great extent. He recently sent a memorial to the Parisian Academy, in which he urged the complete suppression of vaccination."

As for the second and third of the propositions in the report of the "scientific" deputation we mentioned above — namely, that vaccination gives a great immunity from smallpox for a number of years, and that a repetition of it extends and increases the immunity for a still longer period, and gives greater security against fatal results — the facts prove just the contrary of these "scientific" assertions.

In view of the many violent epidemics of smallpox that have swept over Germany, so well vaccinated and re-vaccinated, during the last few years, in which great numbers of the vaccinated have caught the disease, perhaps we shall find some proof of the "scientific" propositions in statistics! How is it then that when an epidemic breaks out the vaccinated always catch it before the non-vaccinated, as is seen by the smallpox lists? Inoculation either does or does not give immunity. If it does, then no vaccinated person ought ever to have smallpox. But experience shows that neither vaccination nor re-vaccination gives the least protection against smallpox! that it is not the corruption of the blood with animal purulent matter, but a proper sanitation that affords the best protection against the disease. But, although high medical authorities, such as Professors Kussmaul and Hebra, have shown that vaccinated and re-vaccinated people are just as liable to have the disease in its worst forms as the non-vaccinated; although the court-physician to the King of Wurtemberg, Dr. Stiegele, has declared: "Even if the protective power of vaccination were incontestable, it ought to be abandoned on account of the amount of illness that it has brought, and daily brings, to humanity;" although chief-vaccinator Dr. Giel, of Munich, was in a position to state that the disease attacked the vaccinated, frequently with fatal results; although hundreds

of doctors do not acknowledge any protective value in inoculation — we go on vaccinating and re-vaccinating.

Dr. Bruckner, of Basle, says that it can be proved from the official returns, that all the smallpox epidemics of recent times have always begun amongst those who have been vaccinated one or more times.

And what must we say to the fourth assertion of the "scientific" deputation? It ran: "There is not a single established fact that proves inoculation to be injurious to the health."

O these marvellous "scientists!" That vaccination is a process of blood-poisoning cannot be questioned by any intelligent man, and is not questioned. For it is just from this deliberate blood-poisoning that the immunity is supposed to be derived.\*

In earlier years the pox-stuff was supposed to be innate, and it was thought that smallpox was a children's disease, like measles or scarlet-fever, which everybody had to have. With the inoculation it was sought to make the pox-matter mobile, and it was thought to be drawn out of the system in the form of the pustules on the arm. Hence the body was supposed to be secured by this treatment not only against developing the disease in itself, but also against catching it from others. If the vaccination did not "take," and no pustules were formed, it was assumed that there was no pox-matter in the system, and therefore that it was completely immune.

When this view, which prevailed in "scientific" circles until the middle of the century, was proved to be false, because the vaccinated and re-vaccinated, as well as those who had already had the disease in its severest form, were liable to have it, "scientific" people came to the conviction that the outbreak of the disease could only be prevented by making the blood immune by means of vaccination. To prevent Beelzebub from getting into the body they put the devil in it. They poisoned — in order to prevent poisoning. Oh, sacred science!

As you have seen from what I have said, dear reader, the experiment of making immune by vaccination has turned out very unfortunately for science. Nature will not be

\* In vaccination, science is transgressing the first precept of surgery, which forbids the admission of foreign matter into a wound (antiseptic treatment).

mastered. It considers inoculation to be a process of poisoning — no matter how clean the animal pus is. Did I say “clean?” But the state has never guaranteed the cleanliness of the lymph. Science has no means of distinguishing “healthy” from “unhealthy” lymph. However, the law does not urge any kind of inoculation, but only vaccination with “good” lymph, with protective lymph, in other words, with stuff which gives a real immunity from the disease. Where is their logic? Are both state and science free from its laws? The lymph must be a protective matter. But neither the pus of the sores that form on the udder of the cow, nor the diluted, genuine pox-lymph — neither the pus (animal lymph) of the calf, nor the pox-lymph injected into the calf and then returned to human beings (humanized lymph), nor what is called “horse-lymph,” gives immunity from any or even a fatal attack of the disease; on the contrary, they poison the whole system, cause more or less serious illness, tuberculosis, scrofula, rickets, syphilis, erysipelas, convulsions, diseases of the bowels, etc., and in many cases lead to a premature death.

The government official at Berlin attributed 1000 deaths from disease in one year (1891) to the effect of vaccination. But there are many more evil consequences of vaccination than people think; partly because many parents neglect, from indifference or ignorance, to have deaths from vaccination officially notified, partly because the cases are decided by those who are responsible for the trouble, and have more than one reason for preventing them from getting known.

Dr. Heine, of Bamberg, tells of “an immense number of such evil consequences of vaccinations,” and relates how he gave his assistance to a colleague, so that a case of the kind in a certain village might be got over “quietly and without any noise.”

Dr. May, sanitary inspector at Birmingham, says, in an article on witnesses at inquests: “In giving evidence which will be made public, one cannot expect a doctor to express opinions that tell against himself. As an example of cases that might tell against the doctor himself, I may mention erysipelas following on vaccination. A death from that cause occurred in my practice, and although I had not vaccinated the child myself, I avoided all mention of it at the inquest so as to prevent anything being said against vaccination.”

And, Dr. Hayd, another friend of vaccination, writes: Fortunately the knowledge of these frightful misfortunes is rather confined to scientific circles; if it were more widely spread, it would place most powerful weapons in the hands of the opponents of vaccination, in the present agitated condition of the public."

Far be it from me to say that all the doctors who vaccinate, or are in favour of vaccination, are only influenced by sordid interests. No, the majority of doctors firmly believe that vaccination is a great blessing to mankind. They believe it, but it has never been proved. For instance, at the medical congress at Cherbourg (1860), and at Bordeaux (1861), Dr. Nittinger deposited a prize of 10,000 francs (£ 400), in legal form, with Professor Desmoulins of Bordeaux, and a number of English and Dutch doctors added a further sum of 40,000 francs (£ 1600), for any man who would take up Nittinger's challenge that "Vaccination caused mental decay and the lessening of the human race," and would "clear it of the charge of charlatanism," and give it a scientific foundation. And at the medical congress of 1865, Dr. Schaller, of Stuhlweissenburg, offered a prize of 1000 ducats (£ 466) to anyone who could give a sound proof, from science, experience, or statistics, that vaccination gave immunity from smallpox! But — none of these prizes have been won yet.

In Germany the compulsory vaccination of sheep has been abolished, principally on the report of Dr. Virchow, who said that "where the sheep were not vaccinated, small-pox has almost entirely disappeared. It seems that the disease is less dangerous where there is no inoculation than where the sheep are vaccinated." And, although Professor Dammann, M.D., director of the veterinary college at Hanover, says there is no difference between sheep and human pox, we go on vaccinating human beings. Lucky sheep!

Thousands and thousands of people have already fallen victims to vaccination in Germany.

"Neither powder and lead, nor the sword and the lance, have laid so many low, in chronic or acute suffering, as the lancet of the vaccinator," says Dr. Böhm.

That is also the opinion of Dr. Weber, of Cologne: "Inoculation does life-long injury to thousands of children



in their earlier or later infancy, either by an early death — increasing child-mortality — or, what is much worse, by infecting the strong-born constitution with disease by provoking into life slumbering morbid tendencies, or by injecting loathsome diseases. In this way it leads to the slow degeneration of a race, against which all the efforts of public and private hygiene are fruitless.”

And a sanitary officer of Stuttgart, Dr. Bilfinger, says: “With the introduction of calf-lymph, vaccination has only increased its horrors.”

But enough of the testimony of distinguished physicians as to the harmfulness of vaccination: enough of all that I have told you, dear reader, about the true value of inoculation. If I have not already succeeded in converting you, the thickest volume will not avail to enlighten you on this “scientific” horror, and change your opinion.

Compulsory vaccination is a disgrace to the nineteenth century. It has no other support but the superstition of our “educated” folk — the trust in authority. This faith in authority is stronger than any other faith ever has been; it is stronger, more deeply rooted, more indestructible, than the fanatical superstition of the Middle Ages.

“The moral aspect of vaccination,” writes the Dresden Anti-Vaccination Society, “arises from the circumstance that it is made compulsory.” Since it is largely compulsory in England, in the present idiotic condition of the law, the question has an ethical side in England too. Compulsion is certainly often necessary for the due fulfilment of the state’s functions, but the necessity, or at least the signal utility of a restrictive law, must be clearly proved. And if any injury be done to individuals by this operation, or any victim be claimed in the common interest, the injury must be indemnified and the sacrifice made good. But in the case of vaccination we are face to face with injuries that are irreparable, injuries to health and life, and to those we can permit no injury or menace.

The state cannot claim the right to make experiments with the health and life of its subjects. It cannot support compulsory vaccination on the sole ground that it will furnish useful statistics. That would be an outrage on the health and welfare of the people, which would be bitterly avenged, and would increase the discontent of those who are discontented.

In England, however, the majority of parents can obtain a certificate of exemption if they will. It rests with them to say whether their children are to be submitted to this poisonous inoculation or not. Only in ignorance or indifference can they allow their children to be cut and poisoned with this vaccination witchery. As to the first point, want of knowledge, I have now put before you, fathers and mothers, matter enough to give you a true sense of the operation. And must we think that you are indifferent in such a question? Can the mother, who has borne the child nine months under her heart, brought it forth in pain and peril, nourished it so long at the sacrifice of her own strength, watched over and guarded it as her treasure and her pride, and seen the light of heaven in its clear innocent eyes — can she thoughtlessly let it be injected with consumption, scrofula, rickets, and syphilis, and see its tender limbs become crooked, swollen and inflamed? Is it a matter of indifference to you, fathers and mothers, that the little being who is a part of yourselves, who is destined to be your joy and hope in your old age, be crippled for life, contract an incurable tedious disease, or, in the most favourable chance, be visited with an early death? Is that no concern to you? Do you realize that your child may die — through your want of knowledge, or of thought, or of courage?

Then take a firm stand against the tyranny of medical practice and ill-advised legal pressure. Avail yourself unfailingly of such means of exemption as the law and the circumstances allow, and help on, as far as your support will go, the agitation for the entire abolition of the last shred of compulsion in the question of vaccination.

## 22. General Rules about Health.

As this book is almost entirely concerned with health and disease, I will repeat in the present chapter in brief form the principal rules for preserving health. Print them well on your memory, dear reader! Everything in your life depends on your health. Happiness, content, and joy of living are inconceivable without health; and it is easier to avoid a hundred diseases than to cure one.

With regard to your food, I must emphasize above all:

Only eat when you feel hungry, and take your meals at regular hours.

Touch no food that is too highly seasoned, salted, peppered, or acid.\*

Restrict the number of meals each day to three, and take care that there is an interval of five to six hours between each meal. The stomach should be empty for at least an hour before each meal, because it needs a rest, like every other organ. In the case of children and convalescents, in whom the metabolism is brisker, an intermediate meal may be introduced in the morning and the afternoon; on the other hand, elderly people in whom the renewal of substance is slower, should have sufficient in two meals per day.

\* Food must be moderately seasoned, otherwise you not only feel no inclination to take a sufficient quantity, but the secretion of the gastric juice is injured, and consequently the assimilation of the food is lessened. Herbal spices, in particular, act beneficially on digestion, in small quantities. As a rule, however, people season their food too much rather than too little. With respect to "spices" and "seasoning" in food Professor Zuntz, of Berlin, founder of the modern food-treatment, expresses himself as follows: —

"The well-to-do are always seeking novel and stronger stimulants, in order to increase the pleasure of taking the food. The excessive stimulation leads to a gradual enfeeblement of the functions of the nervous apparatus that is involved, the secretory glands, and the resorbent cells. A large proportion of the digestive trouble of the present generation is due to this overstimulation. It is especially important to avoid the practice in youth. At that age, when, in harmony with the tendency to growth in the body, the vigour of the digestive apparatus is at its best, too much seasoning easily leads to eating too much, and the growth and the deposit of fat in the system are for a time excessively promoted; this is followed, and most frequently at the time of reaching puberty, by a reaction of the overstrained apparatus, and the foundation is laid for neuropathic trouble, for chlorosis and similar ailments. Besides excess in seasoning, the proportion of albumen is also unduly increased sometimes, which does, it is true, promote growth for a time, but it leads further to a premature sexual development, the evil effects of which in the nervous system and the general development of the body are only too well known. From this standpoint I should advise favouring the easily digested vegetable foods (bread, greens, fruit, etc.), in the diet of growing children, with, as the best of albuminoids, milk, which is much less stimulating than meat and eggs, and so these must only be taken in moderation, and must never form the chief part of the evening meal. Drinks that contain alcohol (and tea and coffee) must be entirely avoided, as well as alcoholic stimulants. The idea, found sometimes in lay circles, that wine and beer are good for strengthening children, is not shared by any thoughtful physician. The statistics of growth and increase in weight show that the surplus weight of the children of the wealthy is lost about or soon after the time of puberty; and that at this time they are frequently outstripped in growth and weight by the children of the poor."

Live temperately and do not overload your stomach.\* Your comfort is closely connected with your disposition and energy. Carefully avoid all kinds of food that you know do not agree with you.

"We all eat too much," cries a French physician in a hygienic pamphlet. "Take an example," he continues, "from the Trappists. The Trappists only take one meal in 24 hours, from September 14th until the first Saturday in Lent. The hour of the meal is fixed for half-past three in the afternoon, twelve hours after they get up (at 3.30 a. m.) These twelve hours are occupied with prayer and manual labour. The monks are in wonderfully good health. Indigestion and other ailments are very rarely found amongst them. Their food consists of bread, potatoes, soup, without fat, and a plate of vegetables boiled in water. Meat, fish, butter and eggs are forbidden the healthy monk; oil can only be used for salad. The ordinary drink is a pint of cider. Dessert consists of raw or stewed fruit. This kind of life is very far from shortening their existence; it rather helps to sustain health and lengthen life, especially when one considers the active healthy habits and the good air in which they live. Gout is unknown in the Trappist monastery; during a period of 28 years the physician to the monastery has not known a single case of apoplexy, dropsy, fits, gravel, or cancer. Even the most virulent epidemics that ravage the whole country never cross the threshold of the monastery. And this experience of the French Trappists agrees with that of the Trappists in Alsace, in Belgium, in Bosnia, and in South Africa; every traveller or visitor marvels at the severe life and its results. The monks say that weak and sickly people who enter their order often become strong and healthy monks. On the other hand, any experienced doctor will tell you that the majority of diseases are due to the opposite of fasting. The famous cathedral preacher Bourdaloue had excellent health until his latest years. A doctor asked him what kind of life he had led. "I take only one meal a day," was the answer. "Do not tell that to anybody," said the doctor, laughing, "otherwise we shall have nothing to do."

Take care to masticate well, and take plenty of

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\* The half of what we eat too much  
Let's give to those who suffer want,  
Then we and they disease may crush  
And each the other's service thank.



time over your meals. Food is only digested well when it has been well masticated. Keep up a bright and stimulating conversation during the meal. Anger and vexation, sadness and care, have a bad effect on digestion, and do not help the food to agree with you.

Let your food be neither too cold nor too hot. It is bad for the health when we change too quickly from a high to a low temperature; a difference of 100 degrees is not unusual with people who take a cup of hot coffee after a meal that finished off with an ice. It is obvious that this must be bad for the health. The best food becomes poison when it is taken too hot. The most suitable temperature for food is one that corresponds to the temperature of the blood. The blood has a temperature of  $98.6^{\circ}$  F., yet we sometimes put into our stomachs food and drink at  $131^{\circ}$  F., and even more. Departure from the temperature of the blood, either above or below, does much harm, especially in early childhood, and usually leads to digestive trouble. Adults, on the other hand, have an inveterate leaning towards food and drink at higher and lower temperatures. Nevertheless, food and drink below  $44\text{--}46^{\circ}$  F., or above  $131^{\circ}$  F., cause special and troublesome ailments in most adults.

After taking over-heated food there is generally a burning in the mouth and gullet, and a catarrhus condition in the stomach; in fact, hemorrhage of the mucous lining of the stomach and ulcers in the stomach have often been traced to the taking of hot food and drink.

Ice-cold food and especially drink are very injurious to take when the body is heated and resting after exertion. Apart from the feeling of icy cold in the mouth, teeth, gullet, and stomach, they give an unhealthy stimulus to the mucous coat of the stomach, which may lead to cramp, gastric and enteric catarrh, loss of appetite, and general disturbance of health.

According to Professor Munk, one notices digestive trouble in workers who are employed some distance from their homes on account of their taking so much cooled food, especially at dinner, as it gets cold in being carried from the house to the workshop. As cooled food is not stimulating enough for the stomach, the result is that the workman wants a "warm" stimulant after his dinner — a glass of beer or a drop of whiskey.

Every woman who takes or sends the dinner to her

husband at work should bear this in mind, if she wants to do what she can to keep him from the public-house. The meal must be over-heated — according to the weather and the distance it has to go — and put in a warm dish, so that it may be nice and warm when it reaches the husband.

When hot and cold drinks succeed each other quickly, they injure the teeth, by splitting the enamel. Then microbes get into the splits and cracks, and cause the teeth to rot.

Do not keep to the same dish too long, but change your diet from day to day.

Do not take any violent exercise immediately after or immediately before a good meal. Neither the sound nor the sick should indulge in any severe exertion of mind or body after a full meal. Nature itself urges us to rest in mind and body after eating. Follow its lead, for nature never errs. The southerner feels all right after his siesta. And does not the baby sleep after suckling? Do not even the eyes of the dear cows close after eating?

See that the bowels act every day, but never use what we call aperients. Instead of drugs, follow the rules that are given in the third part of this book, under "Digestion," "Constipation," and "Costiveness," for keeping the bowels open and regular.

Never drink unless you are thirsty. If you only take water, you do not run so much risk of drinking too much, as you will only drink to satisfy a natural craving. But when there is question of artificial drinks, people not only often drink without thirst but also beyond their thirst. Especially in the hot summer days it is quite an art to be able to quench your thirst properly and healthfully. Should you drink much or little to satisfy your thirst? How must you drink so as to remove the feeling of dryness from your mouth and throat? Is it bad to drink when you are very hot? Those are questions that force themselves on you when you are hot and thirsty, and they have not yet been sufficiently answered.

We generally avoid drinking when we are heated from any violent exercise, because we fear that to take a cold drink when the body is hot and perspiring must certainly lead to a more or less severe cold, or even to a "dangerous" illness; that it may, in fact, have a fatal result. And there certainly are cases where a cold drink has led to a fatal illness.

When a man takes a cold drink whilst his body is heated the following process takes place. The cold stimulus within drives the blood to the exterior, to the surface of the body, and so to the skin, and consequently increases the flow of perspiration. During the discharge of the perspiration that is formed, in accordance with the temperature and the quantity of fluid taken, the blood gradually returns to the interior from the surface of the body. There is, however, nothing abnormal in this flow and return of the blood from within to the surface; nevertheless, it may involve a risk of danger to the health.

As you know, the temperature of the body is  $98.6^{\circ}$  F., and in summer, when the general temperature is higher, it is regulated by an increased radiation of heat and discharge of perspiration from the skin — that is to say, the heat of the body is kept at its normal stage of  $98.6^{\circ}$  by this means. We know further that the body is cooled by the exhalation of this vaporous perspiration. Every bit of sweat that is evaporated leaves behind it a distinct sensation of coolness. In the long run it is the nerves, the vital elements that affect and control the processes of life, including the radiation from the skin, which are responsible for the regulation of our temperature and the evaporation of the sweat. Our nervous system brings about a cooling of the body in proportion to the temperature of the surrounding atmosphere, so that it may keep to its normal temperature of  $98.6^{\circ}$  F.\*

If now we get into a draught whilst the body is heated, the current of air deprives the nervous apparatus of its power to evaporate the perspiration; the air volatilizes the discharge, and absorbs it in larger quantities than would happen with the nerves alone. The more moisture there is at the surface of the skin, the greater is the formation of sweat.

Hence it is not the cold drink, but the outer air and temperature that are injurious when one is heated. But all danger is avoided if, after your cold drink, you set yourself in motion again, instead of resting, sitting, or lying down. The exercise gives new warmth and perspiration. Hence you may take a cold drink without the least anxiety when you are dancing, or practising gymnastics, or on a journey

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\* See the chapter on "Heat."

in the great heat of summer; only you must be off again immediately after your drink, not rest and so expose yourself to a cooling.

But, although, from this point of view, a cold drink when the body is heated may be looked upon as harmless, it is not to be recommended on that account; in fact it must be severely condemned where it is a question of bravado.

As I explained above, cold drinks cause a stronger flow of blood to the surface of the skin, and consequently an increase of the temperature of the skin. In virtue of certain natural laws, "Heat" is the same thing as "strength." Therefore, we have not only an increase of temperature but also an increase of energy. In thus attracting heat to the surface of the skin, we reduce our organic strength by the strain we put on the nerves. Every mouthful of our cold drink — beer drinkers, take notice! — reduces the capital of our vital strength, as we can very easily appreciate from the fact that drinkers, on long marches in summer, for instance, soon become tired and jaded, even if they have only water to drink without any alcohol; whereas those who are temperate, who drink little or nothing, although they feel thirsty, remain fresh and vigorous, and bear great exertions.

Excessive drinking enfeebles the system, reduces its power of resistance to morbid influences, epidemics, and contagious and infectious diseases. Moreover, continual drinking does not quench the thirst at all. Who has not noticed in his own experience that his thirst has increased instead of lessening, after drinking much? There is nothing to wonder at in this. The natural feeling of thirst is due to the lessening of the proportion of water in our blood. By the excessive production of sweat during great heat, a man loses more water from the blood in the way of perspiration than he can replace by drinking heavily. The stomach is, so to speak, not "guaged" to receive at once a proportion of fluid corresponding to that lost by perspiration. Hence, the system loses more than it gains by taking in much drink, especially when the liquid is cold, because it then causes a more profuse perspiration. The sensation of thirst increases in proportion as the quantity of water in the blood diminishes, and hence it is that a man's thirst becomes worse instead of better after drinking much.

But it would be quite wrong to infer from this that it



would be better not to drink at all in hot weather. We must drink, but we must try to avoid perspiring again when we drink. It is well to wait until you are cooled before drinking, so that you may not begin to perspire worse than ever. A cold drink, as I said, lessens the quantity of water in the blood, and this cannot be very quickly replaced. However, it is as well to eat a little solid food with your drink; and it is also advisable to take cold drinks in hot weather through a straw — a custom that is very common in tropical countries. As the drink only gets into the stomach in small quantities in this way, it does not cause such an excessive flow of the blood to the skin, and so the thirst is more quickly and more effectually quenched, as there is not much perspiration produced. As I have already said in the chapter "When, how much, and how must we eat and drink?" it is always advisable to swallow cold drinks in small mouthfuls, so as to avoid an injurious stimulation of the mucous coat of the stomach.

Hence, on journeys and picnics in the heat of summer, and when dancing or engaged in any other heating exertion, make it a rule to wait about 10 or 15 minutes before drinking any cold liquid. Whilst you wait the perspiration caused by your exertion will have subsided enough to enable you to quench your thirst effectually. But if you do take a cold drink when you are hot, avoid draughts, and do not remain still. In such cases you should keep on the move until the body is warm again.

Take exercise every day in proportion to your strength, in fresh, pure air, far from the bustle of town. Exercise promotes digestion and metabolism, strengthens the muscles, soothes the nerves, and brings about a regular and even circulation of the blood.

If you have been heated by walking, never sit in a draught.

In walking keep your body erect and straight, your head up, and throw your shoulders back. Stride out lustily, banish all thought of care, avoid serious reflection, brighten up your heart and mind on God's lovely nature, and have a short trot from time to time.

Let your clothing be pervious and adapted to the weather. Do not clothe yourself too warmly, so as to avoid catching cold. You will do just the reverse of what you intend. You interfere with the exhalation from

the skin, and the circulation of the blood at it, and excessively stimulate its production of heat. Debility and enervation of the skin, are the consequences of clothing that is too warm; and the door is thrown wide open to chills and ailments of all kinds.

Keep your head cool always and your feet warm. Do not cover your head and neck, but only protect your head against severe cold and a burning sun. In suitable weather to go barefoot and bareheaded is very healthy and pleasant, and it hardens one.

Do not neglect to keep your skin clean by washing, bathing, massage, etc. Cleanliness is next to godliness. The skin is a respiratory as well as an excretory organ. See, then, that the millions of pores in it are always open. Frequently wash yourself all over with water at a temperature of 73—78° F., and in drying rub the skin until it reddens.

After every wash in cool water it is absolutely necessary to restore the heat of the body. Hence you must take exercise after each such wash, preferably in the open air, until you get warm, or else go to bed again.

See that your breathing is rational. Most people, unfortunately, do not know how to appreciate the benefit of good breathing; those especially who have to spend most of their life in enclosed rooms do not know how to breathe properly. Healthy breathing should be steady and deep, and should be through the nose. As you know, dear reader, the removal of carbonic acid from the blood takes place through the lungs, and therefore a rational and proper manner of breathing is a most important condition of health.

The majority of people who breathe reasonably do it by accident — more from instinct, that is, unconsciously. But there are hundreds of thousands who do not breathe properly, and so contract more or less severe maladies of the lungs and larynx, owing to an evil practice of breathing through the mouth instead of the nose. The mouth has duties of its own — to eat, drink, and speak; and the nose has also its functions, which are, to smell and to breathe. It is, naturally, less dangerous to breathe through the mouth in summer than in winter. When people breathe through the natural passage — that is to say, the nostrils — the air passes over the mucous membrane and through the different cavities of the nose, and so is warmed before it reaches the lungs; but

when they breathe through the mouth, the cold air comes in contact with the tender membranes that line the bronchial tubes and the lungs, and so causes a local chill, which is often accompanied by inflammation. It is easy to contract the habit of breathing with the lips closed; and people should be careful to teach it to children in their early years, so as to avoid a good deal of disease. If the practice were general, we should have a considerable decrease in the number of cases of lung and throat disease, which claim many thousands of victims every year.

Man is the only creature who has the injurious, and often fatal, habit of breathing through his mouth. It is useful to try the experiment of breathing in both ways — through the nose and the mouth — on going out into the cold air in the morning. In the first case you will find that you can breathe with ease and comfort — the fresh air, warmed by its contact with the mucous membrane of the warm body, is very pleasant to the lungs; whereas, when people breathe with the mouth open, the cold air passes directly into the lungs and so causes a feeling of cold and discomfort, which generally leads to coughs and other troubles.

**Sleep and awake at the proper time.** When the system has been active for some time it needs a rest in order to replace the worn-out material. The most perfect form of rest is sleep. The bed-room should be roomy and airy. Accustom yourself to sleeping with the windows open. The advice of modern doctors that the night air is injurious has long ago been proved to be an old women's tale by the new hygienic systems of treating disease and living.

If you are troubled with insomnia avoid all artificial soporifics; do not let your doctor impose them on you. The commonest soporifics are bromide of potassium, chloral hydrate, and morphia. They do not cause a natural, healthy sleep, but only a kind of stupor, from which you awaken tired and miserable. The nerves gradually accustom themselves to these stupefying drugs, just as sluggish bowels get accustomed to aperients, and so the dose has to be continually increased to produce the effect. Hence those who suffer from insomnia are chronically poisoned, their nerves are ruined, and the foundation is laid of serious brain and nerve disease. Much more effective and at the same time completely harmless is the recommendation of our natural system of treating

disease. An early and light supper — a bandage at 73 — 78° F. round the body at night — the windows of the bedroom open — porous bedding and no feathers — during the day exercise in the fresh air, and a wash all over with water at 73° F. when you get up in the morning; if you follow this prescription you will soon sleep well and soundly, unless your insomnia is due to some serious organic trouble. Avoid all exciting reading and strong alcoholic drinks before going to bed, and never retire with cold feet. Keep your conscience clear, avoid law-suits, and manage your affairs economically and well, so as to avoid debts. Then you will sleep well.

The best time for sleeping is the night, which nature itself has prescribed for the purpose. All is quiet and peaceful in nature during the night. Birds and other animals go to rest; only birds and beasts of prey and such like come forth to seek their victims by night. Even man is more disposed to evil during the night than during the day; the animal passions are awake at night, with the aid of alcoholic liquor; most crimes are committed during the night; burglaries, thefts and murders are generally done during the night-time.

Therefore go to bed at 10—11 at the latest, and you will wake up strengthened and refreshed for the next day's work.

## 23. The Natural Curative Treatment of the Sick, its Meaning and Application.

Amongst the modern improvements, which have so much enriched our own time, the first place must certainly be accorded to the one that concerns not only our surroundings, but that mainly regards our own personality and our health of body and mind. We have come to recognize that neglect of nature's laws, disregard of the vital processes in the human organism, and unavoidable faults in diet and habits of life, are the chief sources of human suffering, and that if we avoid the causes we shall escape the results. We have come to see that the human organism is a part of nature,\* intimately connected with it; when it falls ill,

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\* "By 'nature,' in the wider sense," says Dr. Karl Neumann, "is understood the sum total of all perceptible things, which have undergone no modification at the hand of man. This includes all natural bodies and forces.



it can only recover its health by the same conditions and under the same laws that protect it from disease and sustain its health. The conditions that keep the human body in health culminate in the existence in it of a vital force or natural healing force; and the same conditions apply to the derangement of the human system. It is the vital or natural healing principle which restores health to the diseased organism. This indisputable natural healing force is the condition for the entire system of natural curative treatment, in opposition to the prevailing system of medical treatment, which makes light of our system. In order to strengthen the natural force in the human organism we adopt, for healing purposes, those means which nature herself offers us, such as air, light, water, heat, electricity, etc.; and we complete these "means" by suitable action, by a healing treatment adapted to individual characteristics, which is equally based on natural laws. "As the body and all there is in nature grows from within itself," says Kles, "so it must be healed from within, and what we do is only of service in so far as it supports the internal principle." In the economy of nature everything happens according to definite and strict laws, So it is also in the economy of the human body. If these laws are neglected or transgressed, punishment follows in the shape of decay or disease. But nature is always concerned to amend all that is wrong in her establishment, and to restore the lost harmony of an organism, in this case, of the human organism; it applies all its strength — the natural healing force — to remove all disorder from the vital processes; and it is the object and the distinctive character of our natural treatment to make the fullest use of this natural force, and to support and sustain it in its effort to heal.

It is already clear that disease is not a foreign, independent state, not a foreign intruder in the organism, but a natural process in the system, which results from nature's effort to heal itself. Hence it cannot be the aim of a natural system of healing to forthwith suppress this state of disease,\*

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By 'nature,' in the narrower sense, we understand the sum of all those phenomena, processes, forces, states, etc., of organic — and especially of human — life, which sustain it in its original form, and are internally directed to restore the latter, when it has been lost."

\* The diseased condition is a fermenting process. (See the chapter "How must we protect ourselves against Disease?").

or to stifle the malady in its very beginning; it must aim at removing the causes of the disease. It must further endeavour to control the extent and violence of the malady, as soon as the body begins to endure it, or to stimulate the natural healing force to greater activity, when the process of disease becomes so indifferent and weak that recovery would be doubtful without such assistance. As we have said, only a natural mode of treatment is able to support nature in its effort to restore health completely.

The effort of nature to settle any disturbance of the equilibrium of the organism that may have arisen from any source is partly directed to the removal from the body of all foreign, and so useless and injurious, substances (morbid matter), and partly to the regulation and restoration of the interrupted functions of the different organs. Hence it must always be the first aim of natural treatment to co-operate with the efforts of the natural principle to clear the system, by the employment of suitable means, which nature affords in abundance; to strengthen and stimulate the excretory organs in their action, and thus bring the patient into a condition which will help him most of all to restore the vital functions and processes that have been deranged.

In every disease we find a struggle of the vital or natural healing force with the "foreign matter" which has settled in the system. (See chapter "How must we protect ourselves from Disease?") It is obvious that this involves severe exertions, which take the form of a more or less violent fever. Fever is a fermentation of the foreign matter in the human organism, and all the organs, the blood, the nerves, etc., are naturally drawn into sympathy with the fermenting process. Nature follows a very definite system in its healing activity, and fever is the quintessence or nucleus of this system. "Give me a means of causing fever, and I will cure any disease," says Professor Harless, one of the leaders of "scientific" medicine. The natural mode of treatment never suppresses the fever in feverish ailments, because it is (even in its specific forms) a beneficent provision in all abnormal states of the system, and an important and beneficent healing principle.

The Natural Curative Treatment has only this aim — to watch the fever in acute illness and moderate it when it becomes dangerously high, and in cases of chronic disease, where the fever seems to be entirely absent in spite of the

ever-changing symptoms, to induce it and sustain it for some time for the purpose of healing. It is not necessary to say that the means of the natural treatment under both aspects are not medicines, questionable drugs, and poisons — the effect of which is always uncertain, is only known exactly to a small extent, and is often disputed by the doctors themselves, but of which we do know that they injure a healthy person, and so cannot do much good to the sick; our means are — a suitable natural mode of life, and especially moist heat, which is the condition of all growth throughout nature, and is indispensable to the origin, development, and maintenance of all life on our planet. (See the chapter on "Heat.")

The natural curative treatment makes use of all natural means (such as are to be found in nature) for the purpose of healing an organism — the human organism — that is in intimate relationship with nature. Such means are light, air, heat, water, a natural diet adapted to man's anatomical structure and physiological conditions, electricity, etc. Rest and exercise, massage, and hygienic gymnastics, methodically applied, are other important elements of natural treatment. On the other hand, our natural system of healing is not a "cold-water cure," as it is often called by its opponents, either from misunderstanding or ignorance;\* moreover, it is not confined to the use of water, as is also often erroneously thought, but all natural healing principles, such as air, light, heat, diet, exercise, rest, etc., are used by it, together with water, in a judicious combination, in its treatment of the diseased organism. A tactful employment of these simple, natural means only stimulates the natural healing force in the patient. It is this force alone that works the cure. Hence the proceedings of the natural curative treatment are not violent, but based on careful

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\* What is known as the "cold-water cure" employs, as the name itself sufficiently indicates, only cold water for healing. A good deal of harm has already been done by this system. Many a person who suffered from the nerves has got "out of the frying-pan into the fire" in submitting himself inconsiderately to cold-water treatment; he has often had to go from the cold-water institution into an asylum instead of returning to a normal condition. Our natural system of healing only uses cold water in very exceptional cases, and then it is only applied for a very brief space of time. As a rule we use tempered water, which is applied in the most varied degrees of warmth, with a careful eye to individual needs.

consideration of this circumstance, and they are thoroughly adapted to the strength and vital force of the patient. All unmeaning action is excluded. And under this mild and simple treatment cures are effected that seem astonishing to the representatives and followers of the prevailing allopathic medical system. But it is no wonder that professional doctors are astonished at the cures effected by our natural system, because they themselves never cure, but merely suppress, a disease with the help of their poisonous drugs. The only thing that is wonderful in these natural cures is the marvellous construction of our organism, and its efforts to maintain health or to recover it in case of illness, and the fact that Mother Nature herself has provided us with all the necessary means in the world about us. Only people must learn how to recognize and apply them properly.

However, everything that you find in nature is not suitable for use in our natural curative treatment. Very few mineral and vegetable substances are used as "natural" remedies. No disease of the human frame is caused by the want of chemical substances, such as arsenic, bromide of potassium, iodine, mercury, or quinine, digitalis, migrainine, antipyrine, antifebrine, etc., but merely by neglecting the laws that apply to the organism, by not fulfilling the conditions of life, which are also the conditions of health, by the want of fresh air, light, suitable food, exercise and rest, porous clothing and bedding, healthy rooms, etc.

The human organism, like that of the animals, is composed of the following chemical elements: oxygen, nitrogen, carbon, hydrogen, calcium (the metallic base of lime), potassium (the metallic base of potash), (vegetable alkalies), sodium (the metallic base of soda) (mineral alkalies), chlorine (a simple, ponderable, non-metallic substance, gaseous, according to "Bock"), of yellowish-green colour and of stifling fumes, which unites with hydrogen to form muriatic acid), fluorine (a colourless, gaseous, non-metallic element, not found in the free state, which is found in combination with calcium in nature as fluor spar), magnesium (the metallic base of magnesia), silicium (the metallic base of flint), iron, sulphur and phosphorus. These fourteen simple elements unite with each other and form the following compound elements in the living substance of the body — albumen, fat, water, gelatine, salt, potash, soda, and calciates of phosphoric acid and



carbonic acid. The body is principally composed, as I said in the chapter on "Hardening and Enervation," of albumen, fat, and water; and a change in the proportions of the living substance of the body, from whatever cause it arises, leads to a reduction of the quantity of albumen and an increase of fat and water. A material change takes place in the system under the form of a fermentation, and this departure from the normal standard causes enervation — in other words, disease. This diseased condition — whatever form it takes — cannot be cured by introducing into the body foreign substances of which it is not composed and of which it has no need; this introduction of "foreign matter" or "foreign poison" — which the usual drugs nearly all are, more or less, either merely provokes the reacting force of the system to a more or less violent effort to cast out the foreign, poisonous intruder (which, unfortunately rarely succeeds), or it entirely ruins the natural healing force, which is already taken up with a struggle against the original causes of the illness, and so cannot turn its attention to the rejection of the poisonous drug. It is generally the latter alternative that happens.

Hence no disease can be cured by medicine or drugs (with the exception of the healing herbs, roots, barks, stalks, leaves, flowers, fruits, etc., that are taken from the vegetable world, and the effect of which on the human system has been fully established). If recovery does follow the taking of medicine, it is because the natural healing force has been strong enough to overcome the disease and the evil effects of the drug together. In such cases the patient recovers, not in consequence of the medicine, but in spite of it, thanks to his vital strength. At the same time this rarely happens. As a rule the disease and its symptoms are repressed by the medicine, and the body falls into a chronic state of disease, which is generally supposed to be "health." Diseases caused by drugs and chronic states of poisoning (morphinism, cocainism, quinine, salicylic, iodine, carbolic, and mercurial poisoning) are now quite common. The patient who had his disease repressed by drugs may think himself fortunate if it breaks out again sooner or later in the same or a different form. But he will be much more fortunate, if he does not then fall once more into the hands of a "scientific" doctor, but turns to the assistance of the only true and proper method of healing, which is founded

on natural laws. May this book help to spread the knowledge of that system in every branch of the community, and so contribute to the general welfare.

As I have already remarked, our natural treatment does not attack the symptoms of disease, as allopathic medicine does, but turns its attention to the causes of the illness. In this way it thoroughly heals, and does not simply repress, the disease. It has, consequently, very rarely to acknowledge a case of relapse, which simply shows that the recovery was imperfect, or that the disease has settled in another part of the system. As the several organs of the human body are intimately connected with each other, our natural system of treatment regards the symptoms of disease which break out in any part or organ of the body not as local maladies, but as maladies of the entire system; hence, besides giving a local treatment, it devotes its attention chiefly to the treatment of the general state of the system which sets up the local trouble.\*

Dr. Lahmann, one of the most distinguished and approved representatives of the natural curative treatment, expresses himself as follow as to a perfect cure:

"A diseased organism is not cured until it has been made strong enough to meet the influences of daily life with the simplest vital stimulants (plain food, exercise and rest, cleanliness of the skin, etc.) — when, in other words, it is not upset either by changes of weather or by the normal

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\* The following examples will illustrate the point. Suppose you have a headache, which comes from a disordered stomach; the pain is the symptom; and the stomach the cause of the trouble. Hence if you want to relieve the head-ache you must first remove its cause, the derangement of the stomach. So the system of natural treatment fixes on the stomach as the means of curing the evil, prescribing a suitable diet, a stimulating body-bandage, etc., and only secondarily applies itself to the local treatment of the head by applying cooling bandages.

Another example. You have what you call a "bad finger." It has been caused by the prick of a needle. The prick of the needle was the "releasing force;" the "bad finger" the outcome of evil humours in the body. If your blood had been pure the tiny prick of the needle would soon have healed if no dirt had got into it. The thing to do, therefore, is to purify the humours in your body by a few stimulating full bandages, vapour baths, and a plain unstimulating diet, so as to relieve the accumulation of morbid humours which has gathered in your finger, and to remove the injurious matter by the natural organs of excretion, the intestines, kidneys, and skin. To cut, burn, and cauterise the finger, which is a favourite practice of the professional doctor, does not, of course, remove the cause of the trouble, which is found in the bad humours of the whole system.

circumstances of one's occupation. Hence we cannot call it a cure of rheumatism, for instance, when the patient has been freed from pain by salicylic acid, etc., and can move again; when he has to protect himself carefully from every breath of wind, and develops the disease again on the next opportunity. A patient can only be said to be cured of rheumatism when the abnormal products of combustion (uric acid) which had settled in his system have been dislodged by vapour baths, followed by bracing and cooling baths; when his system has been made more capable of resistance by a rational hygiene (in point of food and clothing); and when he has proved by artificial experiment (alternate warm and cold baths; air baths) that he is no longer liable to catch cold, not only in the open air, but even in draughty living rooms or dancing halls."

People have not been cured of indigestion when they have to take carbonate of soda or magnesia every day to prevent heartburn, or aperients and injections to prevent constipation, and at the same time are tormented with anxiety as to what to eat and to avoid, and are, moreover, never safe against a cancer in the stomach or the rectum on account of the constant fermenting stimulus of the badly digested, unsuitable food. They are only cured of indigestion when the sluggish alimentary canal is restored to its normal activity by promoting the circulation of the blood, by stimulating the muscles of the stomach and intestines and the abdominal nerves (by relieving wet body-bandages, massage of the abdomen, body-baths, with cool douches of the abdomen, etc.)."

Besides the use of drugs, the natural curative treatment also rejects the external and internal application of ice. The most injurious displacements and most dangerous conditions may be caused by the external application of ice to the vital organs. Hence the famous hydropathist, Professor Winternitz, of the medical faculty of the Vienna University, very rightly rejects the use of ice in the course of natural treatment, saying, amongst other things, that the application of ice to the head (in cases of inflammation of the brain, for instance) causes a chill of the brain. But even in less sensitive parts of the body the protracted action of icy cold is bound to set up a condition of chill, or paralysis. It is one of the chief rules of natural treatment, in cases of inflammation of different organs, to draw away the blood that is too plentiful at the seat of the inflammation. In a

case of inflammation of the brain, for instance, it is necessary to lead the blood away from this important vital organ to less delicate parts of the body, to the extremities, the legs and feet, arms and hands; we have to restore the circulation to its normal condition. The only local application necessary in this treatment is the cooling of the head with wet bandages. The effect of the favourite practice of the allopathic doctor — putting ice on the patient's head — apart from the injurious stimulus of the cold, is, first of all, to drive the blood away from the seat of inflammation. But then it flows back in greater quantity than ever, for the purpose of paralyzing the destructive cold stimulus. Thus the inflammation is increased instead of being reduced, although there is a momentary relief of the pressure of blood on the brain; it only flows back in greater abundance, in the reaction, from the interior of the body, in order to — increase the inflammation. And the more the inflammation increases, the more frequently and continuously the ice is applied as a rule. If the natural healing force in the patient is strong enough to overcome the inflammation in spite of the ice, which increases it, people say that the application of ice has had the "desired effect" and cured the inflammation. But if the patient dies, if he has not vital strength enough to overcome the inflammation and its perverse treatment together, then they say, "In God's inscrutable designs — departed this life," etc.\*

The natural curative treatment applies water for healing purposes at very varying temperatures and in most diverse forms (vapour baths, full, half, body, and hip baths, etc. bandages, massage, douches, injections, drinking, etc.), but never below freezing point. The healing power of water consists especially in bracing and stimulating the action of the skin and the nerves. It has also a physiological effect through the oxygen it contains, which penetrates into the system through the open pores of the skin, and has a very strengthening influence. By a sensible application of it one can control fever, either increasing or moderating it, draw away the blood and redistribute it, relieve the pressure of blood on inflamed organs, and in this way restore the equilibrium of the system. But the water must not be icy cold.

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\* "Ice is death," says Priessnitz, "water is life. The former causes paralysis, the latter cures it."



The use of ice for healing purposes is unnatural, and therefore injurious in the highest degree, because an extreme of cold, like the extreme of heat, is utterly unsuited to the physiological conditions of the life of the human organism.

As our system of natural treatment rejects the practice of introducing mineral and vegetable substances into the body, which it does not contain in its structure, and so does not need for its maintenance, development and growth, or for its recovery when it has contracted disease, so it also avoids as far as possible all operations, amputations, cutting, burning, cauterising, etc. Operations cannot be entirely avoided in the present unnatural conditions of our life. Wars, the dangers of many employments, the conditions of modern traffic, etc., will continue to furnish victims to the operating table. Fractures of bones will always happen. Difficult confinements with the aid of instruments will, owing to the unnatural lives of so many women, always call for the presence and support of an experienced surgeon. Hence there can only be a "method of treatment without operations" in the sense that it will teach how to avoid operations on internal and external new growths (tumours, callosities, cysts, polypi, fungous growths, etc.), carbuncles, abscesses, blighted or cancerous inflammations of individual members, etc.

As I explained above, the natural system blames a general disease for the local disorder, and only treats the latter indirectly, devoting its attention mainly to the general malady. But internal and external growths, abscesses, proud flesh, etc., are always the consequence, or the external and visible indication, of an accumulation of foreign matter in the system, a corruption of the blood, or a disordered condition of the humours. Therefore, the treatment must be directed first against the radical cause of the visible symptoms, and the removal of the cause will soon do away with the consequences. At the same time it is useful also to treat locally, besides the general cure; for instance, in the case of abscesses, by applying wet bandages or wrappers, which bring on an eruption, moderate the pain and strain of the skin, and prevent the formation of scars. The patient is thus spared the cutting and burning which the professional doctor generally resorts to in such cases, together with the blood-poisoning that often results from his operation — besides the circumstance that, when the resulting disease has been

removed by an operation the root-disease always remains. In order to illustrate these remarks with an example, let me give a case from my earlier practice at Kassel, which I take from the third volume of the "Neuen Heilkunst" (The New Curative Treatment):

### Cystic Tumour. Operation Avoided.

"You will find a man in the Holländische Strasse who cures without operations." Thus cried a patient who was waiting in the anteroom of the operating-room of the red-cross hospital at Kassel to a young woman who was just leaving the "hall of martyrdom" — luckily for herself not yet operated on.

This young woman, Fräulein Elise D . . . , of W . . . , had gone to "the red-cross" to ask the advice of the resident physician with regard to the removal of a cystic tumour in the neck, and they had wanted — as she excitedly told the other patients who were in the waiting-room — to cut it out there and then. However, she told the blood-thirsty young *Æsculapius* that she could not, and would not, undergo an operation without the knowledge of her parents. Hence it was that she escaped the knife, and went to the "non-operating doctor" in the Holländische Strasse.

She came to me on the afternoon of the 29th of September of last year.

She was 24 years of age, of strong and stout build, but she seemed to one who knew the Kuhne method, quite apart from the local trouble, to be thoroughly overloaded with foreign matter.

The tumour that so narrowly escaped the surgeon's knife was on the left side of the neck, as large as a child's fist, felt very hard, and was immovable and painless.

I could see by the expression of the countenance that the radical cause of the evil was long-standing sexual trouble; the digestive organs were also in complete disorder. The foreign matter had settled chiefly on the left side of the neck, towards the back, and the whole head was also much laden with it. The skin was dry and inactive. Loss of appetite, constipation, cold feet and hands, which could never be kept warm, frequent palpitations and attacks of faintness, pointed to serious disturbance of the circulation.

As the description of her condition agreed with her subjective feelings, Fräulein D. put her confidence in me

and the system of natural treatment, and entered my establishment on the 2nd of October, for the purpose of curing her trouble by the Kühne-method.

It was easy to see by the size and hardness of the tumour that a reduction of it was no longer possible. Unobserved at first, it had continued for several months, and so must now be brought out. Old products of metabolism and morbid matter had first to be cleared out of the system, and the entrance of any more prevented, so as to raise the general tone and put the body in a position to break out the tumour by its own healing force.

This was done in the following way: Slipper baths were taken at the beginning of the cure of half-an-hour's duration, and, as the patient was extraordinarily sensitive, at a temperature of 64° F., until, in the course of a few days, the water was gradually lowered to its natural temperature. As the cure proceeded the baths were gradually extended to an hour's length.

After the bath the patient warmed herself by taking exercise in the fresh air.

The first week she only once had a vapour bath, followed by a body-bath. A little perspiration came after some time. Head, neck, hands, and feet, did not perspire at all.

Partial vapour baths were given at the head and neck several times in the week; at night a stimulating bandage, with an extra cloth, was applied to the tumour, until the part sweated freely during the vapour bath. A slipper-bath always followed the local vapour-baths.

The diet was carefully regulated and mainly vegetal. As I expected very good results from wheat-meal for regulating the very disordered digestion of the patient, I told her to take four or five teaspoonfuls of it at each meal, and to mix it thoroughly with saliva in masticating it. She followed my advice with the best of results. The digestive trouble vanished under our eyes, and with it went the obstinate constipation.

There were a few attacks of vertigo at first, but they became less frequent as the system generally improved, and at length they stopped altogether.

Fräulein D. had now followed the cure for three weeks. Her digestion was better than it had been for years. The palpitations had disappeared. Feet and hands were now generally of normal warmth. The tumour was softer and

more flexible. In and about it there were periodic pains of a contracting and penetrating character. The foreign matter that had settled there was wakening up.

An improvement in mental and spiritual strength kept pace with the improvement in her bodily condition. Force of will and desire for activity returned, and so Fräulein D. felt an unconquerable desire for travelling, and resolved to finish the cure in her own home.

I did not like this in view of the impending crisis, but what could I do? A man's will is his own kingdom. Moreover, when the physician and the proprietor of an establishment are the same person, it is a delicate thing to advise people to remain.

Fräulein D . . . , therefore, took the train home. That was towards the end of October.

I did not hear from her until the 30th of November, when she wrote that the tumour had gone, leaving a hole as big as a pea, from which a good deal of matter suppurated.

She wrote also that for nearly 14 days she had neglected all the cure-treatment. This explained how it was that the tumour had not broken out earlier, although even at the time of her departure movements of foreign matter were clearly perceptible in the diseased part.

The letter closed with warm thanks.

Kassel, February, 1891.

M. Platen.

I have only a few words to add to this case. In a later letter from Fräulein D . . . , I learned that the wound had healed up, leaving a very insignificant little scar behind, and that the neck was as smooth and regular as ever. If she had allowed an operation to be performed, a conspicuous scar would have been left, and the general morbid condition would not have been relieved. The foreign matter would have found its way to the head more than ever, and, if the development were favourable, would have caused another tumour. But it might very well have led to a serious malady of the eyes, ears, or brain, with an aggravation of the general trouble, if we had not rooted out the main disease by expelling the foreign matter with the aid of a complete regenerating treatment.



What was the result of the operation on Prince Frederick Charles of Prussia? The prince had to undergo an operation for a "papilla"\* on the cheek, and six months after the "successful" operation he died of a stroke. This stroke was the inevitable consequence of the operation, which closed the less dangerous outlet of the foreign matter, and forced it to settle in the inner vital organs. "Science" is, "naturally" of a different opinion to "nature." But we should not be surprised at that, because science is wrong in its crude materialistic conception of the processes of life and of the nature of disease. Nature never errs. The hygienic writer, Lothar Volkmar, expresses himself as follows on "operations":

"Medical science ventures to penetrate into the innermost life of the organism with its surgical operations, its cutting, piercing, and burning; and that is a thing that requires great consideration, since it demands courage, skill, dexterity, a sharp eye, quickness, steadiness, and confidence — qualities which are not always found in combination; — since it immediately gives visible results, although very often — too often — the operation goes off admirably, but shortly afterwards the patient is carried off by syncope or some other unforeseen disease, that the surgeon cannot understand; and since, in case of ignorance of nature's true laws and the correct method of treatment, it is often the only means of warding off for a time some danger to life, though it does not affect and remove the disease itself in its source. Against it we must urge: There is only one disease, but many symptoms of disease; there is only one kind of treatment of the one disease; and for its many symptoms drugs are injurious — and operations are superfluous and inadmissible, if the proper treatment is followed at the proper time."

The system of natural treatment also rejects the disinfectants that are so highly esteemed by the medical schools, and with which they are supposed to free bodies and rooms from the morbid matter that is in them or in the air about them. Carbolic acid, iodine, permanganate of potash, salicylic acid, sublimate of mercury, chloride of lime, etc., are used as disinfectants, both in surgery,

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\* A wart-like protuberance, which comes, like all these new growths, from a corruption of the humours.

for the destruction of morbid and contagious matter, and in hygiene, for keeping off the germs of disease and miasmata (in hospitals, closets, etc.) in the atmosphere.

The system of natural treatment knows only two disinfectants — and, of course, they are natural disinfectants — “air” and “cleanliness”. “Ventilation is the best disinfectant,” says Dr. Paul Niemeyer. Apart from the immediate advantage of pure fresh air for both sound and sick, the oxygen in it is also an excellent means of hindering, if not entirely preventing, the further spread of infectious matter.

In the treatment of wounds, and the care of the sick, the natural method of curing recommends to all concerned the most scrupulous cleanliness in order to avoid contagion or infection. Water is the first requisite for maintaining this perfect cleanliness. It is an excellent disinfectant when it is quite pure, and free from noxious additions. It may be applied to all kinds of wounds, especially those which suppurate in healing. As Lawson Tait says, water exercises its beneficent property of disinfection on the larger surfaces of the wound, as he himself has experienced in the hundreds of operations on the ovary that he has conducted. In opposition to the view of his surgical colleague, Lister, Tait rejects the antiseptic treatment of wounds, on account of the cauterising and injurious effect of the chemicals on the organic elements of which the substance of the body is made up.

Water keeps the wounds always clean and fresh. When they are treated with it there is no danger of putrefaction or suppuration, gangrene or erysipelas. The formation of new flesh goes on undisturbed, and the formation of a scar is restricted to the very smallest proportions.\*

I have already expressed my opinion on the advisability of avoiding operations as much as possible, but I should like to add the words of a distinguished teacher, who, unfortunately, covers himself with the veil of anonymity, on “surgical science.” The “unknown” — who is, for all that, a man of eminence — writes as follows in his work on “The Emperor Frederick’s Disease, and what it teaches:”

“Bankrupt medical science seeks its last refuge in the mechanical expedient of amputating the diseased organs it

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\* See further under “Wounds” in the third part.

cannot cure; and the art of teaching science has fortunately succeeded in proving "scientifically" that there can be no other possible healing art except surgery. They have laid down the rule, and supported it with so many plausible arguments,\* that no one can disprove it verbally."

"Diseases are dynamic phenomena;" and from this they have inferred that diseases are local evils, and so can only be treated locally (surgically, mechanically, etc.)."

"Thus has surgery been lifted into favour, and the whole medical world, more or less, takes refuge in amputations and incisions. They make incisions in the stomach, the lungs, and all other organs; there would be no end to it, if the tragic issues of most of their operations, because they were too audacious or because the murderous carrying out of the operation made it miscarry, had not at length rather terrified both the doctors and the people."

So says the anonymous author of "Emperor Frederick's Disease."

It is true that our professional physicians have attained a true knowledge in some branches of their science — for instance, that there are none of those imaginary ailments which were formerly only treated with a shrug of the shoulders and a joke, that there is a real derangement of the physical condition at the root of these "imaginary" ailments, and that the mentally diseased must no longer be treated with barbarous coercive measures, but must be subjected to a suitable psychic treatment, combined with a proper treatment of the body.

At the same time their "science" has still to learn that all other diseases are not cured, but merely rendered more dangerous, or repressed, by their more or less poisonous drugs and their operations.

But many a drop of water will flow into the sea before science learns this. Hence the people must look to self-help, once it has thoroughly grasped the real nature of disease, its causes and course, and the effects and consequences of drug-poisoning and operations, etc. The people must be told what are the causes that are responsible for its ever-increasing bodily degeneration — how it is that

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\* "A false doctrine cannot be disproved," says Goethe, "because it rests on the conviction that the false is true. But the contrary can and must be repeatedly proclaimed."

there is no more health in the nation: for the welfare of the people is undermined by the "science of medicine."

However — the grey twilight is already lit up with a few rays of the rising sun. The dawn breaks more and more. Popular hygiene, like the bright star of day, the sun, rises ever fuller and more brilliant on the horizon, and will soon shed its full radiance from the firmament upon mankind sighing, in its sickness and misery, for deliverance from the yoke of science. The future belongs to popular hygiene, and to the natural curative system of treatment that is based on the laws of unerring nature. The natural healing system will spread beyond its present narrow limits and attain a world-wide predominance, for it is its first aim to ward off disease by teaching people to live naturally, and its second object is to cure disease by natural means. The natural curative system of treatment has a great social function to perform. It fights against the excessive luxury and refinement of modern life, against drink and dissipation of every kind; and it wishes to do for the individual, with its gospel of health, what public hygiene seeks to do for the community — to promote the "health" and the "welfare" of the people.

## 24. The Priessnitz Cure.

As far back as history can reach, we read that ablutions and baths were in vogue amongst the ancients; in fact they formed part of the oldest religions. The Jews, for instance, had their pond, Vedesta, with an Angel as attendant, the ablutions being carried on with great ceremonial. A Water-cure physician figures in remote Roman history in the person of the freed slave, Antonius Musa: he it was, who, by means of this ancient system, cured the "neurasthenic" Augustus and his friend Horace, whose health was impaired by too frequent libations. Both the Romans and the Greeks boasted well-appointed baths; these were constantly used by many who sought renewal of health and restoration of strength and energy, impaired by too luxurious living.

Hippocrates (born 460, died 377 B.C.), Galenus of Pergamos, Askeplades of Samos, the afore-named Antonius Musa, and many other writers, all clearly state that in the remotest ages cold water and baths of all kinds were



instrumental in curing diseases; they tell us how water relieved those suffering from fever, and that this simple remedy was considered the best of all remedies.

According to Hippocrates, a knowledge of massage was required by every medical man; he was the first to reduce to a systematic science, as it were, the many principles of medicine existent in those days, thus becoming himself a past master in the art, and the doyen of doctors of his age. His followers founded a number of schools, so at variance with one another, that Galenus (who died 200 A.D.) was the first to succeed in healing up the breach, by uniting the many curative methods into one practical system.

Theophrastus Paracelsus (died September 23, 1541), an energetic man, who combined a vast amount of natural science with much medical knowledge, first attempted to work against the old-established theories; and it was reserved to him to break down prejudice and to overthrow the limitations of the method laid down by Galenus. This revolution, by the way, was brought about by the researches made by Paracelsus for the Philosopher's Stone, for the Elixir of Life, which was to prove in itself a universal cure; so that, in spite of his failure in this point, he really made discoveries which proved of great importance, both for medicine and chemistry. His motto was: *Natura artis magistra*, viz., Nature is the teacher of Science.

The water-cure was then revived, after a long interval, by a doctor of Schweidnitz, J. S. Hahn (died 1773): he laid the foundation of the same, in a scientific treatise, and practised it himself; his system, however, which was known as the "Enforced Water-cure," did not really materially advance the adoption of the system.

In 1784, Samuel Hahnemann, the founder of Homœopathy, wrote a book concerning the "Cure of old-standing Diseases" which specially dealt with the use of cold water from a curative point of view. This contained detailed instructions for the use of cold water as a curative power. How to bathe, what to do after a bath, the time of day, and the temperature of the water, together with the relative length of time suitable for complete immersion of the body, or the "sitz bath," being explained at length. Hahnemann also dealt with the subject of rubbing (massage) in the same work. In short, with the exception of Hahn, Hahnemann was undoubtedly the pioneer of the therapeutic (curative)



## **Plate III.**

### **Methods of applying Water and Vapour.**

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**Fig. 1. Bed vapour bath by 5 hot water bottles (open).**  
Explanatory text: page 584 etc.

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**Fig. 2. Bed vapour bath by 5 hot water bottles (closed).**  
Explanatory text: page 584 etc.

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**Fig. 3. Throat affusion.**  
Explanatory text: page 1175.

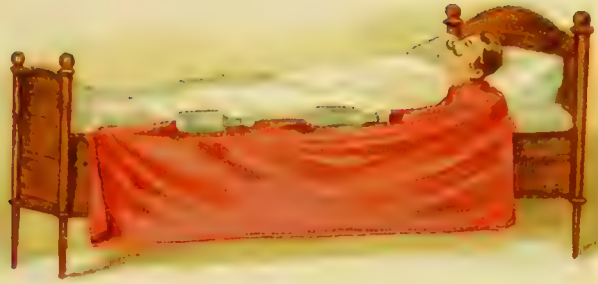
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**Fig. 4. Full Douche. Kneipp's treatment.**  
Explanatory treatment: page 612 etc.

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**Fig. 5. Knee Douche. Kneipp's treatment.**  
Explanatory treatment: page 610 etc.

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*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



*Fig. 5.*





use of water — the hygienic properties of which had lost rather than gained in reputation, owing to the imprudent and unsystematic manner in which it had been used in those days.

Now, considering the opposition encountered by Hahnemann and his followers, some motive was obviously needed to introduce the water cure into allopathy. This impetus was given by a certain Professor Oertel, in Ansbach, who, though not a medical man, was instrumental in causing a new edition of Dr. Hahn's work to be published: "Instruction on the Power and the Working of Cold Water on the Body."

In 1826, the peasant and physician of the natural treatment, Vincent Priessnitz, built the first water cure establishment on the Gräfenberg, in Austrian Silesia. Therefore the use of cold water for curative purposes was scientifically founded and introduced neither by Hahnemann, Oertel, nor Priessnitz, but by Dr. Hahn of Schweidnitz, and it is only fair to state the fact. Hahnemann, however, undoubtedly earned for himself the glory of re-introducing the intelligent use of the water cure among homœopathic practitioners. Even in those days the allopathists and the homœopathists were so strongly opposed to one another, that the former would accept theories put forth by a mere peasant, sooner than follow the precepts of homœopathy; hence the reason for which it is Priessnitz and not Hahnemann who is regarded as the real founder of systematic hydropathy.

Vincent Priessnitz (born October 4th, 1799, died November 28th, 1851, at Gräfenberg) was a poor peasant lad, who worked to keep his blind father. Owing to the intelligent and ingenious use he made of water for curative purposes, he became one of the most celebrated of nature's physicians, a real healer "by the grace of God," whose simple, clear common sense was never marred by the vicious atmosphere of class or lecture rooms, nor spoilt by experiments in dissecting or vivisection. He was self-taught, he acted at the right moment, hitting upon the right thing to do, and Priessnitz thus originated a thoroughly independent and sound system of water cure. And this system was based on natural laws, and founded on personal observation of the working of nature, on experiments made upon himself and on the sufferings of others. After the fashion of all men

of genius, he acted only upon his own instinctive inspiration; he observed, tested and weighed all precedents shrewdly and accurately; obtained a thorough insight into the workings of nature and of the human body, in order to qualify himself for his task. He thus fitted himself to realise most clearly the forces which nature brings to bear upon our organism; he watched the course of disease, and finally attained such knowledge and experience, as to enable him to deal with and cure illnesses according to the laws of nature.

As an example of his wonderful gift of observation, and of his unfailing judgment, we may take the following account of a cure he wrought upon himself, after an accident which had resulted in broken ribs:

"In 1819, I had the misfortune of breaking my ribs by the upsetting of a carriage; the doctor who attended me declared that I could not recover. This was a terrible state of things, for my father was blind and helpless, and all the management of our little homestead devolved on me. Hot compresses, made from herb infusions, were ordered, but so increased the pain that I tore them off in despair. Remembering that I had once cured a crushed finger by the application of cold water, I covered the affected parts with compresses of the same kind: the pain subsided a little, and I fell into a sound sleep. After a few days, I had recovered sufficiently to superintend the work of the farm. From that time forth, and on every possible occasion, for ordinary ills as well as in the case of accidents, I made use of cold water for myself and others with the best possible results. Every now and then neighbours came to me, then sick persons sent for me, and so I became known in the capacity of healer. The more sufferers I saw, the more opportunities I had of making observations and of gaining considerable experience. Then I came to try heat combined with moisture, and made some patients perspire; many were faint in consequence, so that I had to bring them to with cold water. In this way I returned to the system of bathing, which had fallen into disuse, and so one thing followed another."

Thus Vincent Priessnitz.

In his opinion most diseases originate in or are induced by the not getting rid of an accumulation of morbid substances, which mostly have passed from the chemists' laboratory into the body of the patient; another cause lies in the natural weakness of certain organs, or indeed of the

whole body. The whole secret of his diagnosis was contained in these principles.

Priessnitz aimed at operating on the various symptoms of disease, and worked at the elimination of all sluggish and morbid conditions of the body by the application of cold water. Complete immersion, partial baths for the feet, the arms, the head, or any affected part; "packing" the patient in wet sheets, compresses, "massage" (then called rubbing), and cold douches, were to be brought to bear upon the constitution, and effectually disperse the ailments.

Undoubtedly no one can dispute the fact that Priessnitz clearly proved his correct grasp of the nature of various diseases; moreover, everyone must agree with his conviction that water possesses great curative properties. According to him, it is not merely strengthening, refreshing, invigorating, vivifying, cooling and soothing, but he attributes to water a purifying power, tending to disperse undesirable matter, and tending to the throwing off of poisonous substances within the system. Yet Priessnitz often failed, and this failure must be attributed to the indiscriminate and unlimited use of cold water, both internally and externally, together with the injudicious diet — injudicious both as to quality and quantity. Many patients spent an endless time over the cure; others suffered much from the unbearably cold water and the large amount of food prescribed, whilst in many cases other evils arose, because the water was applied in too general a manner, and without due consideration to individual ailments. Putting aside the instinctive shrinking from the sudden contact with cold, a shrinking shared by human beings whatever their peculiar constitution, the results produced by the mis-use of cold water went far towards bringing the water cure into disrepute.

A great many "Cold Water Cure Establishments" were opened by medical men in various places for the purpose of carrying on the Priessnitz System: these, however, have almost entirely disappeared. Nowadays only a small number of physicians practise the system.

There is a marked difference between the "Nature Cure" and the "Cold Water Cure:" a difference which should not be overlooked. In the former, absolutely cold water is only used in isolated cases, and then only for a strictly limited time. Lukewarm or slightly warmed water is used; and then the degree of heat, and the duration of the application



are dictated by the nature of the illness, the constitution and momentary condition of the patient, his or her age, etc.

The medical profession, for obvious reasons, is answerable for the diffusion and acceptance of an idea prevalent among the people concerning the Natural Curative Treatment. Anxiety and alarm seize the opponents of the system, as they witness the success of the efforts made to impress the public with the belief that heroic and injurious applications of cold water are the approved methods of the healer by natural means. This seriously impeded the beneficial action of those who followed the principles laid down by nature, and scared away patients who might have found relief and health by these means.

Lieutenant A. D. Ripper, Priessnitz' son-in-law, tells in his interesting notes, compiled from information given by reliable bath attendants, that Priessnitz worked hard in carrying out his method, and in modifying the same according to his experience. All the same, and although the remark does not detract from the value of his work, it cannot be denied that his mode of treatment was in many cases much too drastic, and that his experiments relating to the use of cold water were often gained at the expense of his patients' health and time.

I cannot, without deviating from my intention of briefly explaining the Priessnitz' system, go into further details. Suffice it to say, that in almost every case the water on the Gräfenberg was used as it came from the spring, i.e., at a temperature of from 8° to 10° Reaumur (about 36—40 Fahrenheit). Dr. Munde, a follower of Priessnitz, relates that, in the winter, the contents of the large baths were frozen, so that the ice had to be broken before the patients could take the "plunge." A concession was made, by which a little hot water was added to the half-baths; according to Munde the quantity of this additional warm water was never measured: it might have attained 60° F. As a rule, Priessnitz personally supervised his patients' first baths, and tested the condition of the water with his hand. Dr. Munde adds that, when "some tests were made by us, the temperature never exceeded 62°, only in acute cases, or after bad attacks, did Priessnitz grant two or three degrees more."

Until 1839, the Gräfenberg patients all bathed in the so-called "large trough," and at that time Priessnitz still favoured perspiration. It was only after some very doubtful

experiments, resulting from inducing violent perspiration followed by a plunge into the cold bath, that he altered his views and greatly modified both the above treatments. The constitution of the patient was taken into consideration. During the first ten or twelve years every one roughed it on the Gräfenberg; individualising was an unknown quantity; the general condition of the patient, his age and his strength, were alike ignored in determining the temperature of the water.

This was a fault, the importance of which can be best appreciated by anyone who is familiar with the present development which the modified water treatment has undergone. No wonder then that, on the Gräfenberg, cases of acute irritation caused by extreme water treatment were not rare, for although Priessnitz intended the cold water to induce subsequent bodily warmth, it is very evident, judging from his failures, that his theory and his practice often clashed. And this, owing to the fact that the prime factor of life and health, warmth, is forcibly expelled by exaggerated applications of cold water: such drastic measures will not produce it.

Then the Gräfenberg diet was not conducive to health either. "We perspired and ate, and ate and perspired," writes Dr. Munde, who was not only a disciple of Priessnitz, but had also been a long-standing patient; "and subsequently many people continued the sweating, until the condition of their skin and their impaired digestion demanded a change, if they wished to live. The worst of it all was, that the disease did not give way, that fresh attacks of gout would occur, etc.; but it was at last discovered that the evil was caused by too much food. Then we realised that it would be far better to decrease the amount of nourishment and modify our meals, than to go on over-eating, and having to spend our time and strength in getting over it."

Further on, Dr. Munde, in describing his cure at Gräfenberg, says: "Priessnitz urged that he who cannot eat everything must be ill! Indeed, his diagnosis depended on whether the patients could eat everything that was provided for them by Madame Priessnitz, and so on."

The wiser principle is this: that patients undergoing the water cure, and in poor health, should not eat all things indiscriminately, and certainly never eat too much; on the other hand, there is no question of the starving method in the Priessnitz system; the Schroth cure, in which water plays a secondary part, works according to entirely different principles.

Still, there is a vast difference between too little and too much. A limited diet was not accepted in those days, although patients slavishly submitted to the quality of the same, as provided by Priessnitz and his wife."

Rausse and Schindler were two other gifted disciples of Priessnitz. They also adopted his system and practised it, after considerably improving and modifying many points, chiefly concerned with the diet of the patients and the temperature and duration of the water application.

Munde founded an important "Hydropathic" in America; Rausse spread the teachings of Priessnitz throughout Germany; whilst Schindler carried on the work on the Gräfenberg after the death of the master.

A great many medical colleagues frequented the Gräfenberg, to familiarise themselves with the system, for, in spite of his drastic water treatment, Priessnitz successfully cured many sufferers whose cases had been given up as hopeless. Yet was he wont to say, that "Doctors made the worst pupils, since to become proficient in the water cure they must forget or put away a great many of their own theories. He was also certain, that "if his establishment were carried on after his death by a medical man, the water cure would cease to be effective."

In fact, several doctors, after studying on the Gräfenberg and adopting the Priessnitz system, were unable to obtain the results achieved by the master. This failure was really due to the fact that they applied it, as they did their medicines, *lege artis*, i.e., according to artificial rule, and not *lege naturae*, i.e., according to the law of nature. They, however, attributed their lack of success to the water treatment itself.

Schindler gives an amusing description of the manner in which professional men "studied" the Priessnitz method. They would say, for instance: "May we see the troughs or bathing apparatus?" Oh, yes, they are so and so much in length, breadth, and depth . . . "And the bandages?" Ah, yes, so and so long. "Many thanks. Yes, now I quite understand!" And this was the "scientific" manner in which they worked the water cure.

Small wonder then, that after such "thorough" study these meddling nature-doctors killed their patients instead of curing them, and that the public came to shudder at the mere mention of the water cure.

Joseph Schindler, one of the most devoted of Priessnitz's disciples, was undoubtedly the most deservedly celebrated doctor who ever reigned on the Gräfenberg. His motto was: "The salvation of mankind lies in being frugal in matters concerning the body, and insatiable in things of the mind." He was violently opposed to the so-called "forced cures." And he rightly held to this, that "men change with the times, and each generation brings with it new needs and phases, so that my patients would presumably die were they to be treated exactly as Priessnitz did, who disapproved of unequal degrees of low temperature for the bath, for clothing, and for sleep."

John Ev. Engl, in his very readable little volume on "Vincent Priessnitz and his successor Joseph Schindler," says:

"Many methods in vogue with Priessnitz naturally needed modifying. Schindler made allowances for his master, who, being essentially a child of nature, born and bred among the mountains, thought the weakly constitutions of the townsfolk were the result of over-pampering: moreover, having succeeded so well in curing himself and scores of sufferers in his neighbourhood by means of cold water, was inclined to expect the same brilliant results when treating his town patients. He naturally could not take into consideration the sensitiveness caused by hyper-civilisation, because never having lived in a large town he had no experience on the subject. All the same, he made use of unfavorable results, in that during the last years of his life he materially reduced his too drastic curative measures.

Schindler cured thousands of people. His treatment of Duke Adolf of Nassau, 1871—72, is still fresh in the minds of many. After recovering from a severe illness, thanks to Schindler, the Duke greatly improved the roads and wood paths of the Gräfenberg. He also completely cured the Grand Duke of Mecklenburg, who, in 1869, had been given up by the doctors. As a token of gratitude, the Grand Duke founded "Mecklenburg House" for officers, built the magnificent Mecklenburg skittle-ground, and presented Schindler with valuable pictures and portraits with the most flattering inscriptions. In 1888, King Charles the First of Roumania was an in-patient on the Gräfenberg. Finally, the Grand Duke of Mecklenburg directed that the Government should provide the means for four medical men in his domain, to be sent yearly to Gräfenberg to study the water treatment under Schindler. In 1882 the same law was still in force.



## 25. The Schroth Method.

"Warmth induced by moisture is equally profitable to wood, fruit, wine, and even to flesh and bone." — Schroth.

Johann Schroth (born February 11th, 1798, died March 26th, 1856) was a contemporary of Vincent Priessnitz, and they went to the same school at Freiwalldau, in Austrian Silesia. When he was barely seven, his father died: his mother, Theresa, née Werner, subsequently married the farmer, Ignatz Gröger, of Lindewiese. Schroth made himself so helpful on the estate, and proved so trustworthy and capable, that his step-father became warmly attached to him, and eventually left him his property, whilst the sons of Gröger had to choose some other line of life. In addition to farming, Schroth also carried on a jobbing business; it was in connection with this that an event took place which indirectly brought about the introduction of the Schroth Method.

In 1817, a horse kicked Schroth, with the result that his right kneecap was badly crushed. The limb was treated according to the surgical methods of those days, but the result was an incomplete cure; there remained a good deal of inflammation in the bones and the surrounding joints, so that Schroth could no longer bend the knee, and he remained lame.

This stiff leg naturally greatly impeded his out-door work, he could no longer walk by the side of his loaded carts, but was forced to climb up and sit down. One day, whilst in this position, he met a monk, travelling for his confraternity, who reproached him for riding instead of walking, as a strong young man should do, when his horse was already heavily loaded. Schroth explained his misfortune, whereupon the monk advised him to bathe the knee several times a day with cold water. At the same time the monk used a small pointed piece of wood, which he pressed into the flesh; he placed this, stained with blood as it was, in his pocket, and carried it away.

Schroth was sharp enough to disintegrate the important from the non-essential, and at once realised that, though the operation with the wood might carry with it some mystic meaning, the really curative thing was the application of cold water.

As his many occupations hindered him from performing the prescribed ablutions several times a day, he hit upon the more convenient plan of tying up his knee in a large wet bandage. Over this he put a dry one, and left it for a considerable time, only renewing it indeed when it was quite dry. The effect of this compress was most favourable; all the more so that, during the night, Schroth used a much thicker compress, and wrapped a woollen band over it. The inflammation of the knee decreased considerably after continuous compresses, and the pain which Schroth endured, during the night especially, became less acute, thanks to this warm moisture; the stiffened joints became so supple, that after about ten weeks the right leg became just as pliable as the left one, so that it was impossible to tell which leg had been injured.

This cure and its result laid the foundation of the method which Schroth introduced and perfected more and more. For some time after his recovery, he only used the wet compress for external purposes (wounds, bruises, stiff joints, etc.), and treated both neighbours and animals; the latter naturally offered material for much experience, in Schroth's business especially. The successful cures which were wrought on external wounds, thanks to the refreshing, soothing, and cleansing action of the wet compresses, led him to wonder whether the use of the same might not be instrumental in relieving internal disorders, for had not the obstinate inflammation in his knee given way to the treatment? No sooner said than done. He varied the size and shape of the compress, according to the part of the body requiring relief, and was successful in curing many patients, who rapidly increased in number. The ailments thus dispersed were complaints connected with the digestive organs, the liver, the kidneys, hypochondria, etc. Thus Schroth made another forward step.

His opinion of the efficacy of warm moisture produced by the compress was largely emphasised by his agricultural knowledge, for he knew well the influence for good or evil on seeds of superabundance or lack of warmth and moisture. He was also well aware that organic matter is produced by the same means, and that with human beings, animals and plants, the germ is influenced and can only be developed by this warm moisture.

These observations having persuaded him that the lack

of these potent factors would kill every organic germ whatsoever, he concluded rightly that their influence must be a healing and strengthening power.

Schroth, like Priessnitz, was relatively a child of nature and a keen observer; the result of his observations suggested the much-opposed theory of diet. He found that sick domestic animals left their food practically untouched, and drank little or no water until they felt better; moreover, as long as they felt ill they remained as quiet as possible. He also observed that all kinds of animals classified under the heading of game, when not mortally wounded, retire among thickets, and rest without feeding, in perfect solitude, until restored to health. These suggestions on the part of nature led him to the conclusion that sick people would benefit by a temporary deprivation of solids and fluids, since a complete dietary change (where the mode of nourishment has caused the illness) is a primary condition of their ultimate recovery. Although the patient, in consequence of over-civilisation, has almost completely lost his natural instincts, yet he often desires some kind of food which would prove most inadvisable.

When driving, it struck Schroth that frequent drinking brought to his horses undue sweating and increased fatigue, whereas dry fodder and rare drinking gave different results. He concluded that much drinking was inadvisable for persons in good health, but that in invalids a plentiful amount of moisture or liquids would work the required change in the body. He tested this by experiments upon himself and others, and proved that in cases of fracture and other wounds, healing proceeded more rapidly if fluids were taken in small quantities. Hence the origin of the Schroth cure, the principal factor of which was the so-called dry diet.

This, however, produced, in a more or less striking degree, a condition of weakness calling for some restorative, to increase vital energy, and enable the patient to resist the effect of disease without too great a strain upon the constitution. After several experiments, Schroth found that the ordinary wine of the country produced the desired result, by imparting the organic energy required to throw off the germs of disease.

Further, Schroth realised that feverish symptoms in every condition of illness were but the necessary result of the curative efforts of nature, and not a special organic evil.

This persuaded him of the fact that a certain amount of fever is imperative for recovery, and that to a degree relative to the disease. Consequently, in inflammatory and acute disorders, Schroth did not attempt to necessarily check the fever, but rather to maintain it to the degree required by nature to work out its curative power. This was done by means of diet and wet compresses. These enabled him, in prolonged and chronic cases, to bring about a high temperature, to regulate and maintain a degree of feverishness, which worked the desired cleansing and purifying effect.

Schroth started from the premise that most illnesses are the result of a faulty mixture of the juices (secretions) of the body, this being brought about by one of various reasons. It might be caused, for instance, by disordered digestion, by unsuitable diet, the exaggerated use of drugs, etc.: or, again, by heredity or infection, such infection being in the air, a result of an epidemic, or contact with some infected thing; or it might result from a sluggish condition of the internal organism, and the inability to throw off the germ of disease. He urged, that unless these humours could be dispersed at once, the patient would sicken for a long or short period, followed by serious detriment to the gastric juices, the blood, and other parts of the organism, then by complete cessation of the acting powers of the body, and ending in death.

His method consequently consisted in cleansing the blood and the humours of the diseased body, and in bringing about, by natural means, the eliminating of the cause of suffering. The natural factors which work out the body's salvation are the bladder, the kidneys, the skin, and the lungs, the elimination being effected by the bowels, urine, perspiration, and expectoration. The principle of good health is thus the good and wholesome condition of the before-named organs; therefore his first aim was to strengthen the same, so that they might fulfil their purifying mission. The regular function of digestion, resulting from suitable food, produces a wholesome condition of the gastric juices, thus raising the quantity of healthy matter to a higher percentage than the impure. Finally, the morbid or sluggish action of the juices and its results are done away with; nature's healing power must be sustained in order to conquer disease; and everything which might in any way lessen or impede the working of nature upon the human organism,



and which consists in attacking, loosening and eliminating the irritating matter. Moisture induced by warmth is a wonderful dispersing factor; diet works against the formation of gastric substances; perspiration brings out the fever, modifies, and, lastly, checks it completely.

Thus, to assist nature, Schroth used the so-called small bandage the larger or "Rump" bandage, partial compresses, the "packing" of the whole body in wet sheets, and a special dietary system.

It is impossible to go into the details of the method, which the reader will find in Chapter 29, "The Privation Curative Treatment." It may, however, be said that, without the strictest obedience to the diet, the compress and packing would be insufficient and ineffectual. Diet formed an indispensable and most important feature of Schroth's method, and those sufferers alone who feel that they possess sufficient strength of mind to carry out the difficult task thus imposed upon them can hope for a complete eventual recovery. There are three divisions in the treatment: the Introductory Cure, the Principal or Strict Cure, and the After Cure.

The first aims at helping to prepare the patient for the radical change of living, so that the general health may not be too heavily tried, and the time spent on this process, depends on the habits, the temperament, the age and condition of the patient, as well as on the form of disease. The bandage, or the rump packing, is used at night, and food consists of liquids, gruel, etc. This is not the part of the cure most trying to the strength of mind. But the Principal Cure is the most original, important, and trying feature of Schroth's method, and requires in the highest degree patience, perseverance, courage, self-confidence, self-control and strength of mind. In chronic diseases the three-quarter packing is used; in acute cases the whole packing is combined with the abdominal compress, with gruel diet; for some time drink of all kind is forbidden; then there are short pauses for recovery from the strictness of the system.

The After Cure, like the first of all, consists in bringing the patient back to his usual habits. During this period diet is made an important feature, so that the avoidance of heating food substances gradually works back to ordinary living.

Now the objections raised against, and the doubts entertained concerning this method, centre precisely around this question of food and drink. The opponents of the system

urge, that when patients are thus deprived of these essentials, their constitution is so impoverished that the symptoms of disease merely become suppressed, not necessarily eliminated, and that at the expense of the much-needed strength and vitality. Consequently, when the body recuperates, the symptoms may re-assert themselves.

This, however, is a mistake, and is best proved by the remarks of Dr. Cybulka, who stayed with Schroth for some time, in Lindewiese, for the purpose of investigating the method; he writes, after an impartial judgment resulting from experience gained during fourteen months, after seven months daily and friendly intercourse with Schroth, and after constant observation of in-patients, and of the splendid results of the cure in question. Thus:

"It is not Schroth's theory alone, but the results of the treatment, which must silence these unfounded objections. The adopted diet certainly barely nourishes the body, but the avoidance of harmful food frees the action of nature, and enables it to work off disease and impurities. These are the factors which weaken the patient, hence the weakness is felt most strongly during the period in which the germs of the disease are dispersed or eliminated. As soon as this has been effected, and judging precisely from the enforced and strict diet, strength returns, the body becomes rounder and fuller, the complexion improves, and after the 'purification' is complete, and the return to more varied nourishment, recovery goes hand in hand with the regular and perfect action of the human organisation."

"It is obvious that all the means employed in the Schroth method work towards the same end. Surely the opponents of this cure speak in complete ignorance of the same, or they are actuated by spite and ill-will; for, taking into consideration the poisonous matter eliminated through expectoration, the action of the bowels, sweating and urine, a close observer must be filled with wonder at the rapidity with which patients recoup when wine and simple diet are resumed, and forget every symptom of the conquered disease in the enjoyment of perfect health."

"There are naturally cases in which the evil symptoms have reappeared; but this was due to impatience, to special circumstances affecting the patient, or to careless disregard of dietary rules, which brought about a relapse, or indeed paved the way to some other illness. A partially quenched

fire will burn up at the slightest breeze, and the Insurance Company can only pay the value of a house destroyed by fire, the authorities cannot ensure against the breaking out of another conflagration. Just in the same manner, a curative treatment, though healing a standing ill and stemming the ravages of disease, is also helpless in dictating that carelessness and unsuitable living shall never again have evil results on this or that person."

It is needless to add anything to Dr. Cybulka's encouraging words.

Schroth had an extensive practice: he restored to health many persons whose doctors had pronounced them beyond hope of recovery. Sometimes patients visited him at Lindewiese, at others he himself attended them in their homes, so that he was frequently absent for weeks together. His was a generous and sympathetic nature, and his power of winning confidence stamped him a true physician and a powerful helper. In spite of his many successes, or, perhaps, owing to the same, he suffered a considerable amount of persecution and of ingratitude. He was a "thorn in the flesh" to the local practitioner, because, understanding the art of healing as he did, Schroth "spoilt the trade." And obviously, from the point of view of professional science, he really did so. If a man undertakes to cure persons where professional men have failed, and whom they have declared incurable, this man, not holding a diploma, is put down as a meddler by the professional. As a matter of fact the case should be reversed, for it is the scientific man who dabbles in medicine because he does not understand the art of healing. But what does this circumstance prove now-a-days to the title-loving self-esteeming public?

The title of Doctor alone commands awe and respect, since "what a 'Doctor' does must be well done." Poor Schroth, in spite of his success in restoring health, unfortunately had no degree wherewith to shield himself, and which would have given him the privilege of sending his patients to the place whence we return no more. Consequently, for twenty years, he was persecuted and tormented, driven from one place to another, removed and accused of sorcery, brought to judgment as a dabbler and quack, and even imprisoned.

But then he was an outsider. If he had been a colleague, it would have been different; or even had his method been

less simple and commonplace! But as it was, he must needs be persecuted.

In spite of all the attacks and humiliation which Schroth (just like his contemporary Priessnitz) had to suffer, the authors of these attacks adopted the system of these two Quacks (!); a number of establishments were founded, and the water cure and dietary method were only successful when used by the "profession." Perhaps it is considered etiquette among professional men to heap insults on a layman who performs wonderful cures after a method of his own, and then to make use of his discoveries! If so, one would like to call the proceeding by quite another name, if one dared!

Schroth was more than once tempted to give up treating human beings, and to confine himself to the cure of grateful animals; but he was so hard-pressed by would-be patients, and so desirous of lessening human suffering, that he never carried out his threat.

Dr. Cybulka, who wrote "The Dietetic Cure of Johann Schroth, and its Excellent Results" (published by H. Mathes, Leipzig), holds that, considering the attacks and ingratitude that fell to his share, Schroth was indeed wonderful in that he never lost sight of his one object — the relief of pain; and his unselfishness and self-sacrificing character were worthy of even a better cause. That he had great power and a special calling was proved — that this simple-minded man could, without extraneous help, treat the most complicated fractures. He had a wonderfully simple form of bandaging, which brought about complete recovery in the space of from four to six weeks, without leaving a trace of stiffness, the limb being perfectly straight, and all the functions in working order. For leg fractures he used a bandage different from that in vogue in hospitals. It was simple and exceptionally practical, since it could be undone every hour to inspect the fracture, without moving or raising the limb. This is a tremendous advantage, especially in fractures which carry with them wounds, splintered bone, or crushed flesh. For dislocations and sprains he had arranged special manual exercises, which, doing away with mechanical apparatus, afforded great relief, and gave fresh evidence to Schroth's keen intelligence.

The cold water was applied in a novel manner, by changing the compresses only every two or three hours; ice was



never used, his theory being that some amount of inflammation is needed for the healing of bone fractures, and that, in order to hasten the cure, this inflammation may be modified but not suppressed. The above-named writer often accompanied Schroth in his visits to patients, and is unremitting in his praise of the simple remedies he used, and in his wonder at the gentleness with which he spared his patients any needless pain. People in the neighbourhood had come to be callous on the subject of fractures, and were wont to say: "Schroth will soon put it right again!"

Here is a further testimony written by Dr. Cybulka, after his previously - mentioned visit to Lindewiese. He may be accepted as a competent person, and the expression of his judgment is of great importance, all the more so, indeed, that he criticises the Priessnitz method, as opposed to Schroth's treatment:

"During a practice of twenty-six years, Schroth made some marvellous cures: illnesses which had defied every kind of medical treatment gave way to the simplest procedure, and other ills, pronounced to be fatal unless operations were performed, decreased, and finally disappeared; for instance, weeping fistula, fistula of the anus, caries, white swellings, and others. Scrofula too, though a disease supposed to have a long and tedious run, disappeared by Schroth's treatment after six to twenty weeks."

"In spite of such obvious success, notwithstanding the nobility of his character, and the natural excellence of his proceedings, he was attacked both in his character, his method, and its results. The calumny originated among the followers of Priessnitz, and so distorted the facts, that many persons who gave heed to the senseless and spiteful gossip were terrified at the mere mention of Schroth, and, unfortunately for them, were deterred from seeking his assistance. Those who were brave enough to look the matter in the face, and to examine the question with justice and impartiality, soon discovered the truth, and recognised that the attacks were dictated by party feeling and envy. The sound principles of the method were obvious, and it was evident that Schroth's rough shell contained a priceless pearl, inasmuch as his method gave real health."

Cybulka goes on to say: "Far be it from me to depreciate the curative power of cold water, indeed, I hold with the celebrated Doctor Hoffmann, that if there were a

universal remedy for disease, that remedy could only be water. Schroth proves it to be a potent healing factor, and as such it was considered in the oldest times; but I cannot agree with the indiscriminate use of cold water applied externally and taken internally, especially carried on as it is by the Priessnitz Method, together without consideration to the dietary question.

“Nor can I understand how the Method is praised and in vogue; for during my stay of fourteen months with Priessnitz, I noted few good results, and many ills following upon that promiscuous application of cold water.

“Whilst Priessnitz merely washed his patients with the sponge and advised a sensible diet, the number of cures was greater; when he prescribed sweating, followed by the cold bath, he was also more successful than he is now, although the violent sweating system made victims. This was natural, since certain diseases, such as abdominal troubles, are not to be treated in this manner; and the above method was — and very wrongly — applied indiscriminately to every patient. And this caused the unfavourable reports, the few cures, the long duration of illnesses, as compared with former statistics, of the Gräfenberg. For the principle of all vegetation, of life, and of possible healing, is forcibly withdrawn from the body by the exaggerated use of cold water; the ordinary diet is not calculated to decrease the symptoms of disease, but rather to increase them, resulting in so-called attacks. Priessnitz, indeed, intended the cold water to induce warmth of the body, but his manner of applying it could and never did accomplish his object, as is proved by experience and common-sense. The proceedings he used would prove far more injurious than profitable: lying in wet sheets for a short time, constant change of bandages, baths, douches, sitz, foot, and head baths, rubbings, etc., all following upon one another in quick succession, in all seasons, could obviously not produce the desired effect: independently of the fact that cold water, cold milk, strawberries, etc., are not articles required by the digestive organs to ensure their proper working. And this indiscriminate overloading of the stomach with indigestible food naturally made it imperative that the natural functions of the body should not thus be impeded, as they were at Gräfenberg. For poorly-stewed beef, roast pork, goose, or duck, with sauerkraut, and all kinds of salads, highly-seasoned sausages, greasy liquid food, and a lot of butter, etc., are not advisable in cases of gout and other diseases.

"Water must indeed possess supernatural powers if it is expected to counteract the influence of such irritating substances upon the patient, but also attack and destroy long standing acidity; the system is fully overtaxed, as it is, by the heavy unwholesome food, without requiring any addition to the same.

"No impartial observer could fail to note the harmful results of the combined injudicious use of water and bad food at the Gräfenberg. Furred tongues, acidity, indigestion and heartburn troubled the patients, cases of numbness and of cold hands and feet were frequent; and not unusually sickness, or weakening and protracted diarrhœa, supervened on the excessive drinking of cold water. And although such evils were put down to so-called "attacks," or phases of the disease, they were indubitably caused by lack of necessary warmth and ruined digestion; and it rarely occurred that any relief was afforded to the patient.

"These attacks, or crises, in the spirit in which they were judged at Gräfenberg, were expected with impatience and welcomed, therefore the phase must have been a favourable one. But a really favourable crisis must prove itself so by bringing about a rapid improvement of the original disease. In Gräfenberg, however, the patients were frequently troubled for weeks, months, and even years, with Furuncle swellings, whitlows, boils, suppurating sores on various parts of the body, sickness and diarrhœa; all this, moreover, without any improvement in the particular symptoms for which they had come to seek relief. It is therefore very evident that these visitations, called 'phases,' were none other than fresh conditions of ill-health, engendered by abuse of cold water and injudicious diet, and by unnecessarily increasing the original disease.

"Many of the above disorders can be produced on perfectly healthy bodies by continuous and frequently changed compresses, and this fact naturally decreases the value of such forced crises. Anyhow, it is rather narrow-minded to think that the skin is intended to throw off disease by means of boils and swellings; it certainly claims to do this through sweating, and it is only when the perspiration is checked or impeded, that skin diseases and swellings supervene.

"On the Gräfenberg, in addition to the above injudicious proceedings, the patients wore light clothing all through the cold weather, thus preventing the proper action of the skin;

this, added to violent applications of cold water, caused irritation without desirable sweating, the inducing of which was entirely neglected; hence all the terrible additional disorders, further encouraged by unwholesome food. Priessnitz does not consider the importance of other organs, and entirely overlooks the fact, that superfluous matter, whether healthy or diseased, is eliminated not only through the pores of the skin, but by means of the natural and proper function of the bowels and the bladder.

"My enthusiasm concerning Gräfenberg and Priessnitz was considerably lessened by my own personal experience, and my observation of the results attained with other patients. Yet, I am a lover of water, and firmly convinced that a moderate water cure, combined with fresh air and exercise corresponding with the kind of illness under treatment, and supplemented by judicious diet, should work wonders. In cases of long-standing disease, strict dietary rules are imperative to bring about a rapid cure, and in this matter the superiority of Schroth's method is apparent. I proved it by personal experience, for by its means I was cured of troublesome gout, from which I had suffered for three years; besides which, I noted many other cures of serious protracted disease, many being accomplished in an incredibly short time. Gräfenberg patients, disappointed in their expectations, and distressed at the time they had wasted there, precious months which even ran into years, came to Lindewiese to consult Schroth, and had no reason to regret doing so."

This is what Dr. Cybulka urges for the benefit of those who, as is often the case, form an entirely erroneous opinion of Schroth's method, judging from the exaggerated reports they have heard of the same, and it is for this reason that he is quoted here. I have nothing to add to his opinion, except that I thoroughly endorse it.

In conclusion, the account of the illness of Duke William of Wurtemberg shall be given, and will show how Schroth completely cured a fracture of the shin.

### **The Cure effected on the Prince of Wurtemberg.**

When I stayed at Lindewiese, with Schroth, in 1851, to learn something about the method concerning which false reports were being circulated, I heard, among other things, of his treatment of the Duke, the result of which seemed



almost supernatural. I begged Schroth, who was most amiable and friendly (his usual attitude towards professional men who visited him with honourable intentions), to tell me all about it. I listened to what he had to say with the keenest interest, filled with wonder at the recovery of a sufferer whose case, according to the most learned opinions, was hopeless. Amputation was for a time considered, but its consequences were greatly feared, owing to the patient's extraordinary weakness.

Duke William of Wurtemberg, Captain in the Austrian Infantry Regiment Nr. 45, was commanding the storming of the enemy's entrenchment during the battle of Novara, March 23rd, 1849, about noon, and was wounded just under the knee, by a pointed bullet, discharged at very close quarters. The bullet injured the ligaments and tendons of the kneecap, pierced and splintered the shinbone, cut the muscles of the calf of the leg and injured the arteries, and went out at the other side. The wounded Prince remained on the spot during the heat of the fighting, and was not removed until the next day, when he was taken to the nearest ambulance in Mortara.

The loss of blood and ensuing weakness endured by the young Prince (then about twenty years old) seemed to have considerably lessened his sense of bodily pain — yet he was bled twice. On the 28th of March he was taken to Pavia. The journey caused considerable pain, and some matter formed in the leg, eventually spreading rapidly. The tight bandages increased the pain so much, that he became unconscious; violent feverish symptoms set in, placing his life in danger. Owing to insanitary conditions, however, the Prince was brought to Milan, under great difficulties, and was treated by the head surgeon of the Lombardy Police Regiment. On the 7th of May the gathering in the leg was lanced, and the Prince began to hope for great improvement.

Only towards the middle of June was the invalid allowed to leave his bed, but he could not move the injured limb; took prescribed baths twice daily, tried to walk with the help of crutches, and after the 20th of June drove out twice a day. He left Milan on August 1st, although the pain had increased to an excruciating degree, and by the Doctor's advice tried the baths of Baden, near Vienna. The journey, accomplished at the expense of terrible agony, did not harm the patient much, and after a fortnight spent in Baden, he felt comparatively

stronger. But he soon fell away, the swelling and inflammation increased, and even whilst the improvement lasted he could not set foot to the ground.

The most celebrated physicians in Vienna, like those he had consulted in Milan, advised amputation, to which the Prince was reluctant to accede; and as his condition became worse, he left Baden, in an exhausted state, to return to his native town of Karlsruhe, in great agony. He reached his father's residence on the 22nd of September.

A great surgeon from Berlin was called in, and suggested that the injured bone should be removed. But this was delayed, owing to the enfeebled condition of the patient, which made the issue of the operation very doubtful. At this juncture, a former tutor of the Prince urged him, in spite of family opposition, to go to Johann Schroth, in Gräfenberg, near Lindewiese, whom he had heard greatly praised; indeed, shortly after he had been wounded, the Prince had exclaimed: "Were I only with Schroth, he would surely save me!" And so the much-to-be-pitied young patient, after his doctors had vainly drenched him with camomiles and asafætida, left home on November 12th, to seek relief from Schroth. He reached Lindewiese, the last refuge of many hopeless sufferers, on the 14th; he was as pale as death; the injured limb, stiffened out, had to be supported by a servant, who walked on ahead as it were.

When Schroth undertook the first bandaging, he was startled at the sight before him. The knee was swollen to considerably more than half its normal size, owing to infiltration of the cellular tissue and muscular interspaces; it was very hard to the touch, as a result of partly healed fistulæ; movement of any kind was intolerable, and the slightest bending well nigh impossible. The bone, too, was abnormally large, and an examination, made by a physician who was then staying with Schroth, discovered signs of necrosis (bone decay). The probing revealed roughness of the bone, and yet, as soon as the slightest pressure was used, the instrument broke through the disturbed bone cells; not only that, but, at a depth of three inches, bone splinters were found. Fœtid matter also exuded from the bone. The swelling extended from above the knee down the calf of the leg. In the space dividing the muscles were hard and very painful lymphatic glands, the size of pigeons' eggs. Further exami-

nation also showed that there was considerable enlargement of the liver and spleen, resulting probably from the malarial fever which the Prince had contracted in Venice.

It was therefore a case, not only of removing one specially located evil, but to fan to life the rapidly decreasing vitality of the patient. In order to achieve this, according to Schroth's theories, a new and healthy condition of the blood and juices must be induced, to the complete elimination of the morbid and poisonous matter: in such thoroughly regenerative cures, the healing of minor organs goes hand in hand with the one principally affected. The doctor staying at Lindewiese, who, thanks to the principles of his learned professors, could not believe in the possibility of a cure without medicine, warned Schroth seriously, reminding him of the heavy responsibility he was taking upon himself in attempting the application of his Method on so hopelessly sick a patient. Schroth, however, had imposed upon himself three days' time for reflection, then he said to the doctor: "The Duke will bear the treatment, and be sure that I shall cure him."

In order to render possible the cure according to the method of its inventor, this clear-headed physician, according to the dictates of nature, realised that before the regular application of the treatment the general condition of the patient must be taken in hand, in order to strengthen his system and furnish it with reactionary power. Schroth began November 14th. Until the 10th of December the Prince partook of nourishment and drink every day, whilst bandages which Schroth found suitable were applied at night. The wound was rubbed night and morning with the hand slightly wetted; this was done gently, and as far as the pain allowed; then a long linen bandage, dipped in the coldest water possible wrapped round the limb seven or eight times, so that each strip covered the wound twice, producing fourteen to sixteen thicknesses, and this was kept covered up, to induce warmth, for twelve hours. At the end of this time the linen was perfectly dry, as the moisture had been absorbed. As the matter still formed, Schroth also used, two hours before the night bandage, what he had invented and called the "change bandage."

In relating his illness and recovery, the Prince says:

"My diet was a simple one. I ate nothing in the forenoon, as dry-wheat bread did not tempt me. At mid-day I

had a piece of beef stewed till nearly dry, with rice or potatoes; at 4 in the afternoon wine was allowed, but in spite of intense thirst I could not get accustomed to it. After a fortnight I was able to drink water. The result of this simple, but intelligent treatment, was surprising to a degree. On the second day the lower wound (which had already scarred) opened, and a quantity of matter was forced out, the previous terrible pain decreased, I slept more quietly, and was less feverish. My appetite improved, and no one ate more than I did on the occasion of the Church Dedication festival, which took place whilst I was at Lindewiese. It was then that old Schroth's ingenuity manifested itself. He allowed me some broth, which he otherwise never allowed where the healing of wounds was concerned. When the bandage was removed the same evening, there appeared, as he had foretold, an unfortunate swelling, by which Schroth proved the unfavourable effect of broth on wounded joints, before the digestion was in good working order. To make further experiments, he encouraged me to drink cold beer with the other patients the next afternoon. I had two mugsful, and after three hours, grey unhealthy-looking matter had formed, whilst a white liquid exuded from above, and the edges of the wound were red and painful. This was a striking proof that my digestion remained very weak, and that all the juices concentrated in the wounds. Had I persisted in the same course, I should eventually have wasted away."

On the 2nd of December the patient, for the first time since the battle of Novara, was able to stand and walk across the room; the leg proved fairly strong, though the knee and the joints of the foot were painful. The feverish symptoms disappeared altogether; finally, after the visible healing of the wound, and further strengthening of the leg, the patient entered upon the "Principal or Strict" cure. Then began total "packing" in three large sheets, wrung out in cold water. This introductory attempt tried the weak condition of the patient so severely, that Father Schroth allowed him his usual diet. He really only recovered sufficient strength to start the full principal cure in the middle of January. On this subject the patient remarks thus:

The more thirsty I was, the more did matter exude from the wound; a dark, fœtid, thick, blood-streaked substance ran out, and decidedly resulted in strengthening my limb and making it more supple. After three weeks my tongue was clean,



and the exuding matter became purer, and Schroth allowed me to enter upon the After Cure. After a few days of the changed treatment, the wound ceased to run, and was quite healed shortly after. The principal treatment had left me much emaciated, but with increase of flesh the leg became stronger, and very soon the lameness disappeared, and my health and strength were fully restored. On the last day of January, 1850, I presented myself at Gräfenberg, to give the followers of Priessnitz a fresh proof of Schroth's Curative Method. On the 1st of March, being declared completely cured, I recognised that I owed my wonderful recovery, accomplished in the short space of sixteen weeks, to the most revered Father Schroth."

As a token of recognition, the Prince published, in No. 43 of the "Austrian Soldiers' Friend," a Viennese paper, the following proclamation:

**"To my Army comrades:**

"The undersigned considers it his duty to bring to the notice of his wounded comrades, a healing Method, which works more certain recovery than any hitherto known medicines used by doctors.

"John Schroth, a farmer in Niederlindewiese, near Freiwaldau, in Austrian Silesia, has for many years treated old and fresh wounds with the most brilliant results, but he has hitherto been far too little known. Many persons jeeringly called it the Wheat Cure, because it was thought that he healed wounds with dry wheat. This is not so. Schroth's principle consists in keeping from the wounded parts all poisonous and unhealthy juices, and he accomplishes this by subjecting his patients to the strictest diet. Water is forbidden, whilst wine and wheat-bread are used as strengthening nourishment; at the same time he applies local wet bandages, removed at intervals varying with the particular wound. It is not what one would call an easy cure, but it is not unbearably strict, and surely no sacrifice could be too great to bring about ultimate and certain recovery.

"To give a few examples, I will begin with my case. I was wounded under the knee by a bullet which pierced my leg through and through. After nine months' suffering, there was hardly any hope that I should retain my leg. Then I went to Schroth, and he cured me in four months.

"The pensioned Colonel von Tschebuly had suffered since 1809 from the after-effects of several wounds; in 1849 he followed the treatment for nineteen weeks, and was cured of all his ills.

"Naturally an old wound needs more time than a newly-made one to be cleansed and cured; the result, where the latter is concerned, is wonderfully rapid. I will only give two cases which I witnessed in Lindewiese. A peasant girl broke her arm, and splintered the joint: quite a short time, by the application of compresses, and suitable diet, worked such wonders that she could bend and use her wounded arm as easily as the sound one.

"A vigorous elderly peasant damaged his shinbone with his axe to such a degree, that it was nearly divided in two, and several sinews were severed. In three weeks' time he was out of danger and began to walk.

"I shall at any time feel pleased to give my wounded comrades further details of a treatment to which I owe my recovery, and which, I trust, will restore many others to perfect health.

"William, Duke of Würtemberg,  
Captain of the Infantry Regiment, No. 45,  
of Archduke Sigmund."

## 26. The Rikli Method.

"Water does the work." (Rause.)

"Air does more, and light most of all." (Rikli.)

It is a matter of not uncommon occurrence that measures intended to correct mistakes and reform abuses should, at the outset, stir up strife among their friends and well-wishers. What is essential is apt to be mistaken for unessential, and vice-versa. Individuals regard and criticise the reforms from their own point of view, and are influenced by their customs, training, bringing-up, and material interests, and the diversity of opinions often produces a spirit of intolerance which shows itself at the smallest provocation, and will not endure even slight deviations from the standard set up. This antagonism does not, as a rule, die out until the champions of the different views have passed away, and their successors contrive to come to an understanding, as they take a more just and impartial view of the points in question.

Some time ago we used to hear of Priessnitz and of Schroth as being in opposition to one another; now they are classed together, and instead of their two methods, which were regarded as rivals and antagonists, we have the so-called "Combined Process of Natural Healing," which is a combination of the two, inasmuch as it greatly restricts the cold water process employed by Priessnitz, and extends the application of heat and moisture, by means of vapour baths and hot air baths, as recommended by Schroth. It also modifies their systems of diet, and gives great prominence to the action of air and light in curing disease, for the importance of these two factors had hitherto been overlooked, and they\* owe their recognition to Arnold Rikli. He was born on February 13th, 1823, at Veldes, in Carniola, and became the founder of the system of treatment by light and air, or sun-baths, and, as I have already stated in the Chapter on Light (p. 60), he can justly claim to have energetically opposed the exclusive use of water in the treatment of disease.

Rikli tells us that when he was a boy he felt an instinctive desire to expose his body to the warm, life-giving rays of the sun. Foggy and wet weather caused him discomfort. Early in March, as soon as signs of spring appeared, he used to go out on fine days into the country near his home in the Canton Berne, in Switzerland, and there, on the southern slope of the hills or in the woods, he would lay his clothes in the sunshine, and stretch himself upon them. If the power of the sun was not great, he remained thus only fifteen or twenty minutes, but his sun bath often lasted an hour, when the sun's rays had greater force. Then he would dress himself, and go for a walk to get warm. In the introduction to his work on "Atmospheric Treatment," he says: "These first primitive sun baths were begun early in the spring, and were cooling rather than warming in their effect, in fact they were what I now describe as light air baths. As the season advanced, and the sun's heat penetrated my body, I began to feel the need of cooling myself, and for this purpose I used to walk about naked in the woods. Later in the summer, when even the air of the woods did not suffice to cool me, I used to take my sun bath near a brook, and when I was thoroughly heated, I sprang into the water and swam about until I was cool. I was naturally of a sound constitution, but this double bath,

by increasing my strength and vitality, afforded me supreme enjoyment.”

Rikli invented the apparatus for giving vapour-baths to patients confined to bed, and partial baths (See “Vapour Baths” in the second part of this work), and the utility and convenience of this apparatus are now universally recognised. As a full-grown man therefore he carried out the ideas that he had conceived as a boy, and tested on his own person.

The vapour baths that he prescribed for his patients had such good results, that he was encouraged to experiment further in the application of sun baths. He convinced himself that perspiration is of great importance in the case of a sun bath, and consequently, in 1855, when his Sanatorium was built in Veldes, he introduced a system of a dry pack at the conclusion of the sun bath, which must be taken in a state of perfect nudity.\*

In the work to which reference has already been made, Rikli writes: “A perfect artist never fell from the skies, but even the simplest arts require certain rules to be observed, and it was my business to learn what I could about the application of sun baths. During four years (1865—1868) I experimented every morning, both winter and summer, upon the use of light and air baths. Like all so-called civilized beings, I had been taught the antiquated doctrine that cooling the body in the open air was very dangerous, and a certain cause of disease. It was therefore not without some amount of alarm at my own recklessness that I experimented thus on my own person, and considerable courage was needed to overcome it. I began by walking barefoot, and gradually uncovered more and more of my body, becoming convinced that to expose it to the air was not only free from danger but really advantageous. I perceived that the light and air bath had an admirable effect upon the nerves, and was not only more pleasant, but afforded more elasticity to the whole frame than any application of water,

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\* Perspiration, combined with the elimination of diseased and foreign matter, is not to be regarded as the chief object of a sun bath, but rather the vitalising effect, attained by stimulation of the whole nervous organisation. The same remark applies also to the various forms in which the natural treatment of disease is applied, and especially to the complete and partial packs. In many cases the success is not due to the production of perspiration, but to the stimulation of the whole organisation with the aid of the nervous system.



and that this bath might with perfect safety be combined with a subsequent sun bath."

In the chapters on "Air and Light" I have already discussed the influence of air and light upon our mental and bodily wellbeing.

Rikli regarded them as remedies of the highest order, as his motto shows, and he rightly called them the simplest and most beneficial means of curing, strengthening and hardening the human body. He teaches us plainly, that if we are to benefit by the light and air treatment, we must not expose ourselves to the influence of these two agents only whilst we wear clothes, but a light and air bath must be taken, in a state of perfect nudity, if it is to have a permanent and beneficial result.

In his treatment of the sick, Rikli employs other natural remedies, such as water, diet, exercise, rest, etc., but by his method we understand the application of Air and Light as remedies for disease.

He is the proprietor of a Sanatorium conducted in accordance with these principles. It is situated at Veldes, also called the Gräfenberg of Carniola, one of the most beautiful and picturesque regions of the world.

The influence and importance of pure, wholesome air to the human body are widely recognised, but many people under-estimate the importance of the action of light upon human and animal organisms.

There is, however no doubt that the various rays of light give life to the plants and govern their growth.\*

Light has a very great influence upon animal life, which it affects both through the eyes, which allow it to penetrate into the interior of the body, and also through the layer of pigment in the skin. Scientists have proved that the skin of animals is sensitive to light and colour, and the process is apparently similar to that of the retina. Light penetrates not only the outer, but also the inner surface of the skin, and, this being the case, it follows that it is impossible for animal life to be maintained in health without light, and especially without the light of the sun.

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\* Different rays of solar light have different effects. Vegetable physiology teaches us that the extreme red rays of the solar spectrum convey heat; the yellow rays give nourishment, and by means of chlorophyl they decompose carbonic acid gas; the blue rays are the cause of movement in the various parts of a plant, and so are productive of growth; the extreme violet rays produce blossoms.

The decomposition of carbonic acid gas is greatly accelerated by the influence of light.\*

Light does its work upon the human body chiefly through the skin, and privation of light gives rise to many diseases. In animals light assists the growth of horns and affects the colouring of the skin, which grows darker and less susceptible to other influences.

The bearing of light upon the animal life of man has been discussed in the Chapter on "Light."

In large cities those who live in dark dwellings become pale and anæmic, and are subject to many diseases. Every living creature on our planet, whether animal or vegetable, requires light in order to maintain its health, and becomes diseased in the dark. The beneficial influence of light is one reason why it is wholesome to be much in the open air, and to be in the light is as important as breathing pure air, rich in oxygen, and taking exercise. There are many circumstances in our daily life which, if rightly considered, will prove to us the importance of light and its action upon our bodies. There is a connection between the light of the sun and the development of organic life, and in the various seasons the course of nature is so ordered, that the effect of the sun's rays varies greatly, and men, as well as other animals, are affected differently at different times of the year. The coats and plumage of mammals and birds respectively vary according to the season, but what causes this variation? It is due to the influence of light upon the skin, which is exposed to the same conditions as the surface of the earth.

The growth of fur and feathers is analogous to the sprouting of plants, which is due to the joint action of the sun and of water, whereby these germs are called into a state of active growth. The same cause which in spring makes nature clothe herself with fresh green and with flowers, produces fruit in summer and autumn, and it is the same cause which acts upon the skin of animals, and uses

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\* Light has a stimulating effect upon the working of any animal organisation. Men and beasts produce more carbonic acid gas in the daylight than in the dark, other things being equal. Light causes decomposition to take place more rapidly, and hence carbonic acid gas is given off more abundantly, and digestion is accelerated. This fact is utilised in fattening cattle, for those which are to be fattened are kept in the dark. Excessive fatness is a symptom of disease both in men and beasts, and is due to an impeded process of assimilation.

it as an instrument serviceable for many purposes. Again and again we are forced to recognise the fact that human beings, plants and animals are full of life in every part of their organisation, they form a portion of creation as a whole, and are most closely connected with it.

Deprivation of light is followed by a diminution both in the quantity of blood in the body and also in the proportion of red corpuscles which it contains, and consequently any person or animal kept in the dark becomes anæmic. Rikli is gifted with a wonderfully keen insight into the importance of the influence of light upon our whole system, the blood, nerves, nourishment and digestive process. A normal life cannot be passed in the dark. He maintains that light is of more importance than water, and recommends atmospheric rather than water baths. He acknowledges the value of washing, bathing, massage, etc., but places the advantages of the light and air bath above them all. "Man is made to live in the light and air," says Rikli, "he is not an amphibious creature, which needs to be constantly dabbling in water. Man is born without clothes, and is destined by some primeval law to live as a plant endowed with powers of motion, in an atmosphere which is a sea of light and air."

The middle layer of our skin, the so-called stratum lucidum, contains a perfect network of nerves communicating with the two great nerve-centres, viz., the brain and the spine. Other nerves connect those of the skin with those of the chief organs of the body, and our blood circulates through this same layer of skin in innumerable and very minute veins, so that we need only to consider these facts to be convinced that we should do well to expose the whole surface of our bodies to the beneficial action of light and air. In this way they are able to affect our nervous system and circulation as a whole, and can act upon every organ in the body. Hygiene requires us to wear clothing that is not impervious to light and moisture, and no one can deny that a light and air bath must fulfil the conditions laid down by hygiene. During it the skin is not impeded in its action, but permits the free passage of air, vapour and blood, it can produce and radiate heat, whilst the light and air penetrate into the body by way of the skin and lungs.

A moderate cooling of the skin, even to the point of shivering, need cause no anxiety. The capillary vessels of the skin contract convulsively under the influence of cold

air as they do under that of water. The serum of the blood is driven into the interior of the body, and when the warming process follows, it returns bringing with it foreign matter of various kinds, which it carries to the surface of the skin. Water and air have, however, not the same effect from a physiological point of view, for different causes will always produce different effects. According to Rikli, water has a power of conducting heat  $4\frac{1}{4}$  times as great as that of air, and a power of absorbing heat 770 times as great. The action of water upon our nervous system is therefore much more intense than that of air, and water cools us much more quickly than air. We are, however, created to live in air, not in water. To reduce the temperature of the body to the same degree requires its exposure to air and light for twenty-five or thirty times as long as to water which has the same temperature as the air.

The action therefore of light and air upon the body is much slower than that of water. The curative power of water is undeniable, but in its development of nervous force, the chief factor in a healthy existence, water is less effectual than light and air.

The relative values of light, air and water correspond to their capacity of acting upon the human body. Light has the greatest capacity and water the least, whilst air stands midway between them. (Rikli.)

Light and air are the best means of maintaining the health of the body. (See the Chapter on "How to Render our Children Hardy.") They also produce fermentation, when diseased substances in the body require elimination; but they do not only produce it, but also remove it. The light and air bath works on our organisation as a whole, through the action of the nervous system, and is the most natural, simple and effectual remedy imaginable. Without pretending to explain it, I declare it to be the only universal remedy bestowed upon us out of the abundant resources of a beneficent nature. The present state of civilization offers serious impediments to the application of this remedy. Our climate, too, limits the period of its use, and we are forced to fall back upon the other natural remedies, such as water, diet, gymnastics, massage, although they are of less value. In large towns it is practically impossible to take light and air baths. Dwellers in cities seldom possess an open space where they can enjoy light and air without being exposed



to the gaze of their neighbours. Even where a garden is attached to a house, it is seldom sufficiently private for any one to strip off his clothes, and offer his homage to light and air. It might be possible to do this behind the shelter of four walls, but a light and air bath taken thus loses half its efficacy. The necessary conditions can only be fulfilled in the country, or in the solitudes of the forest, far from towns and people, and even there unexpected hindrances may present themselves in the shape of a country policeman, who would regard the fact of a man walking about in a state of complete or partial nudity as an offence against morality and order.\* Country people would be apt to consider that a man who went about without clothes was mad, and they might attempt to catch him and give him over to the safe-keeping of some asylum.

We cannot deny that when we desire to bathe in light and air we are very likely to encounter difficulties and moral deterrents, and we must expect some unpleasantness and abuse. As a rule, such baths are only possible in properly planned institutions, arranged for atmospheric treatment, and for the application of light and air electricity; and even there the use of light and air depends upon the state of the weather, which is constantly changing, whilst the other factors employed in the natural treatment of disease are at our disposal at all times and in every place.

## 27. The Kneipp Method.

"All ye waters, praise ye the Lord."

Kneipp's name meets us wherever we go, and we hear constantly of the wonderful cures which he has effected by the application of water. His cures, his treatment and his writings, are mentioned in the newspapers, magazines, and works dealing with the natural treatment of disease, and even in medical papers.

Who was Kneipp?

He was a Catholic priest, who practised also the natural curative treatment, and his numerous and very remarkable successes have won him a great reputation in medical and

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\* There is certainly nothing immoral in going about naked in pursuit of health; it is the aim or purpose of every action which gives it its specific character and renders it moral or immoral.

other circles. He was a physician for diseases both of soul and body, and he practised his healing art in the most touching and unselfish way, accepting no payment, and receiving only such offerings as the generosity of his patients prompted them to make for purposes of charity.

Father Kneipp lived at Wörishofen, a pleasant village situated between Memmingen and Augsburg, and many sick and suffering people find their way thither.

It will be interesting to learn something of his career and of the methods which he followed.

He was born at Stephansried, near Ottobeuren, on May 17th, 1821; his father was a poor weaver, and his parents were not in a position to give their son the means of studying, although he had good abilities and a great desire to use them, and for a time he was a weaver, like his father. When he was twenty-one, he could no longer resist the overpowering wish that he felt to become a priest, and he abandoned his trade, and travelled from village to village, begging the help of the priests to enable him to begin to study.

After many fruitless attempts, he succeeded in securing the assistance of Chaplain Matthias Merkle, of Grönenbach, who afterwards became a bishop. From this good priest Kneipp received some instruction in Latin, and then he began to attend the Gymnasium, or high school, and it was at this time that he made his first experiments regarding the healing properties of water. Want and over-exertion had so greatly reduced his strength, that symptoms of consumption showed themselves. His medical adviser, Professor Pezold, of Munich, did his utmost for him, but without success, and Kneipp saw his prospect of ever becoming a priest grow more and more remote. While he was extremely ill, there fell into his hands a little work on the curative properties of water, written by Dr. Hahn, the first German "Water Doctor," and edited by Dr. Hufeland, an old and much respected physician. This little book contained an account of several cures effected by the water treatment, which it advocated. The reading of this work gave Kneipp fresh courage, and he began to carry out the instructions given, and before long the progress of his disease was arrested, so that he could continue his studies and be ordained priest. He persevered with the water treatment, and in course of time his health became better than it had ever been. His success encouraged him

to recommend the same course to others, especially to his fellow-students, and the results were so satisfactory, as to cause him to continue the practice after he had been raised to the priesthood.

Father Kneipp's powers of observation, his practical nature and his good sense, assisted him in the development of his water-treatment on lines of his own. He describes it in a simple work that soon became famous, and is written in a popular style intelligible to all. Its title is "My system of water treatment, tested during over thirty years, and recorded for the cure of disease and the preservation of health." \*

This book is not only instructive, but interesting and convincing, for it contains many instances of cures and histories of his patients. The result of its publication was to make him most widely known, and a kind of migration on a small scale set in the direction of Wörishofen. Patients of every rank came to Father Kneipp from all parts of the world, in quest of advice, help and cure, and not a few found what they sought, and spread the good priest's praises

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\* "This book was not written to order, nor composed with any view to personal advantage, but owes its origin to the genuinely Christian desire to help suffering humanity; many thousands who had recovered health begged me to write it." The above words are quoted from Father Kneipp's preface to the first edition, and he continues. "My friends impressed it upon me incessantly that I should be wanting in charity towards my neighbour if my experience was buried with my body. I have received innumerable letters from learned men to the same effect, but I was moved to write chiefly by the requests of poor sick people in the country, and so, against my will, I set to work, though my hand was already shaking with age. At all times it has been my aim to devote particular attention and care to the poorer classes, and to the neglected and forgotten sick in remote country places; and to them, above all others, I dedicate my little book. Its language is simple and clear, as is necessary if it is to serve its purpose. I have avoided all learned jargon, and have adopted a conversational style in preference to producing a dry, uninteresting sketch that would have no results." "I do not trouble myself at all about the people who find fault with me and are ready to criticise my work, if they are moved by party spirit, and I have nothing to do with quacks and dabblers."

"I may take this opportunity to declare that, in spite of my very off-hand and unattractive behaviour, the largest building in the world would not have contained all the sick and suffering people who have come to me, without exaggeration, in thousands and tens of thousands. Famous members of the medical profession have adopted the water treatment with decision and great success, although in many cases to do so dealt a death-blow to their consultations and knowledge. May this change be the morning glow that is the forerunner of a bright day!"

in all directions, so that more and more sick people visited him at Wörishofen. Physicians saw themselves deserted by patients whom they had failed to relieve, and their attention was attracted to the water system, which effected most remarkable cures in thousands of cases. They finally began to accompany their patients, and joined the stream flowing towards Wörishofen, for they wished to see these marvels with their own eyes and to be instructed. Science accepted the teaching of skilful experience in the art of healing, and the medical profession condescended to learn of the "dabbler," for, according to the views of professional men, Father Kneipp, like every other undiplomad practitioner, was nothing more or less than a "dabbler," although in a kindly and original fashion. He cured the sick, but without being permitted officially to do so; he gave medical advice, but he had passed no examinations and received no diploma. The physicians who studied in Wörishofen, with more or less success, at the end of their training founded a great number of institutions where patients can be treated on the Kneipp system, and it is a very remarkable fact that many of them have procured written certificates from Father Kneipp, declaring them capable of practising his method.

Some one may say: "But Father Kneipp was, in the eyes of the profession, only a quack." But that makes no difference. His method has proved acceptable to the general public, and people were not slow to see that money might be made by it.

In an article which appeared in the "Zukunft," a paper published by Maximilian Harden, in Berlin, Professor Schweninger, Prince Bismark's physician, says: "We acknowledge that the dabbler in the healing art does a great deal of good, but we are not willing that he should earn money." This circumstance may partially at least account for the recognition by the medical profession of Father Kneipp's achievements in the healing of disease, for it is well known that he asked no fees, but handed over all that he received to the church and charitable institutions.\*

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\* "A sense of shame comes upon the physician who, in Wörishofen, hears from dozens of educated people that they have for months consulted in vain professional medical men, who take large fees, with regard to symptoms which have been either completely removed or greatly alleviated here. Whoever attentively observes Kneipp's mode of dealing with a patient, will soon perceive that he applied his treatment to the man as a whole, appealing, not at first to the intellect, but to the will, which is so much neglected in



The principle underlying Father Kneipp's method is a very simple one, but the results of his treatment are marvellous. He starts with the theory that every disease arises from the blood, which either contains impurities or circulates defectively. Cold water is applicable in both cases; it is used to stimulate the skin to activity, so that the diseased matter may be removed and discharged. According to Kneipp, patients suffering from smallpox and typhus may be speedily cured by washing them all over in cold water. If the circulation is out of order, it is regulated by means of the well-known douches. In innumerable cases Kneipp has cured people who had lost their voice, their sight, or their hearing, and he regards these afflictions as due to a chronic state of congestion. He aims always at strengthening the whole organisation of the body, and at

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modern education, and also in hygienic matters. He practised what he preached; rose at five o'clock; for weeks together he drank neither wine nor beer, even when his work was incessant; and in the evening, before going to bed, he walked about barefoot for a few minutes on the cold earth. Many sufferers from sleeplessness, to whatever cause it is due, who in vain have recourse to morphia, sulphonal, paraldehyd, or other narcotics, all of which are injurious, sleep heavily after sitting for at most three minutes in cold water, or after a short cold packing. These applications have the further advantage of expelling gas and urine."

"The cold bloodless feet of people who habitually take no exercise are pleasantly warmed by a walk lasting a quarter or half-an-hour, taken on a summer morning upon grass fresh with dew, or in winter on the newly-fallen snow. When, after the walk, shoes and stockings are put on, a most delightful sense of warmth is experienced if the patient continues to walk up and down. The country people who walk barefoot from the month of April to the end of the summer are healthy, not in spite of but in consequence of this practice."

"Kneipp recommends walking barefoot, cold packings, douches, baths of all kinds, but he uses some other remedies to assist the water treatment. Many teachers of pharmacy would describe these remedies as absolute rubbish, yet their good effects cannot be denied. For instance, Kneipp used an eye-water prepared with powdered aloes in cases of scrofulous ophthalmia; and he often prescribes honey in various forms, whereas nowadays its properties are overlooked in medicine. It does general practitioners no good to apply abusive epithets to such work as that which Kneipp did, and what goes on at Wörishofen shows that people prefer bread to stones."

"It is true that water does not do everything, but still less good is effected by alcohol, even when it is taken in the form of wine. When the history of medicine is written, the tendency to prescribe alcohol will be regarded as an unhappy mistake on the part of our physicians. The advantages of Kneipp's methods are their novelty, the short time required for their application, their cheapness and accessibility. We physicians should make all these our own, and develop them further, discriminating between what is essential and what is of less value." (Central Medical Journal, Hamburg, 1889. No. 35.)

rendering it better able to resist disease by reasonable means, and he attains the desired results by applying cold water, with its electrical effect upon the human body, for the shortest possible time. He never attacks a disease in one part of the body only, but his treatment covers the whole frame, and as this gains vigour, it imparts some of its newly-acquired strength to the weaker, and consequently diseased parts or organs, and thus gradually the symptoms of disease vanish. According to the reports before me, Kneipp succeeded in curing every kind of disease with the exception of organic mischief, and complaints that are either hereditary, or are acquired in very early childhood, such as epilepsy. There are also some wasting diseases that have resisted his treatment. He did not ask a number of questions, nor examine the tongue or the pulse; for long-winded consultations he had not time, as hundreds of patients daily asked his advice. It was enough for him to glance at the expression and complexion of the patient, at his eyes and bearing, and as Kneipp was a born physician, with divinely-inspired powers, he at once perceived what was amiss. His keen insight, and the general correctness of his diagnosis, inspired everyone with confidence in him. His method of applying his water treatment was as simple as his theory of disease. Cold water was used very gently and reasonably, in most cases only for half-a-minute or a minute, seldom for longer than three minutes. The application of the water is not followed by friction, brushing, or drying, but the patient must warm himself by moving in the open air, or, if this is impossible, he must go to bed until he is warm. Leaving the body wet has undeniable advantages, inasmuch as it produces a comfortable moist warmth, and distributes the blood evenly over the frame. Father Kneipp also recommended his patients to take exercise before applying cold water, in order to bring the body to the normal temperature. He went so far as to say that the best results are obtained if the water is applied when the patient is in a state of perspiration, but he never sanctioned the use of a cold bath when the patient was perspiring and his heart agitated. Every imaginable kind of douche is in use at Wörishofen, but the one most commonly prescribed is the so-called shower bath, which consists of pouring two or three large watering cans of cold water upon the patient's back, the stream of water

being made to flow in various directions. The knee douche is generally used in conjunction with the shower bath, and the water is allowed to play upon the knees and calves. After the douche has been applied, the patient often has to stand in cold water up to his calves or knees, for a time varying from one to three minutes, or else to move about in water for one to five minutes, and many people carry out this part of the prescription by walking about in a brook. Kneipp also used half-baths, which require the patient to sit two to six seconds in cold water reaching to the waist, and hip baths, which are also taken cold, and last about one minute; also back douches, which resemble the shower bath, but during them water is poured over the legs. After the patient has stood or walked in water, he often has to hold his arms and hands under water for one to three minutes. The water is in all cases cold, just as it flows from the spring, for Kneipp maintains that the colder it is the greater its effect; hence in winter he generally puts snow into the water, to make it as cold as possible. All the applications of cold water are calculated to act upon and regulate the circulation of the blood. Many patients have to walk about for a quarter or half-an-hour, or even longer, whilst the grass is wet with dew, or on wet stones or freshly-fallen snow — many are obliged to go barefoot all day. Every patient is recommended in the winter to run about for a few minutes on the snow, and by these means the organisation of the whole body and the nervous system are strengthened and invigorated, the circulation of the blood is regulated, so that it is diverted from the head and brought to the extremities.

It would take me too long to describe in detail all the applications that Kneipp made of cold water: the reader will find them given minutely in the second part of this work. I wish merely to draw attention to certain points: first, to his great principle that the shortest applications of water are the best. He also recommended a break of a few days, after the treatment had been carried on for some time. Although in his writings Kneipp advocates the use of compresses, vapours, etc., in Wörishofen the cold water treatment is employed almost exclusively. In every case he insisted upon exercise being taken in the open air, to recover warmth after the application of cold water.

He practised what he preached, and set his patients a good example. Every morning he took a cold half-bath, in

which he remained about a minute whilst he washed the upper part of his body. He was a friend of fresh air, and kept his window open at night even in winter. He was convinced that light clothing, evenly distributed over the body, was the most beneficial, and he wore at every season only what he considered absolutely necessary. He permitted none of his patients to wrap up and to wear superfluous garments. He himself scarcely touched spirits, and allowed his patients very small quantities of them. He allowed each one's appetite to regulate the amount of food taken. As becomes the advocate of a natural and regular way of life, he went to bed every evening at 9, and began his day's work at 5. He disapproved of haste and excessive exertion, and often told his patients to walk slowly, think slowly, and speak slowly. He recognised no distinctions of rank, he cared nothing for drugs, but he often had recourse to the valuable properties of plants, although they have elsewhere fallen into disuse.

His knowledge was not derived from pathological works, but from his own observations, carried on for many years; and so he acquired a wonderful insight into the character of his patients, their diseases, and the effect upon them of the water treatment.

It would be a mistake to suppose that Kneipp's treatment, although it has had brilliant results, can succeed in curing long-standing complaints in a few days.

The late Dr. Priessnitz used to say that a water cure required character. Recovery by way of Kneipp's method is sure but slow, as a rule; but there are exceptional cases where marvellous results have been achieved in a relatively short time. When patients first begin to follow his treatment, it is not uncommon for their complaints to seem aggravated, and to come to a crisis, for this result inevitably follows any mode of treatment which aims at the complete elimination of diseased matter. The patient at first feels worse day by day, and suffers as did Father Kneipp himself, who, in his youth, applied cold water to his sickly body with apparently no good results for six months, after which time his recovery was rapid. "The water treatment," says Father Kneipp, "resembles a hunt. The poisonous matter must be expelled from the body, and this cannot take place without disturbance."

It is necessary to begin the treatment slowly and cautiously, to give very short douches, and to proceed very gently, in order to avoid violent reactions and crises



The reader is requested to bear this in mind when he studies the second part of this work.

Kneipp's method involves a revolution in the art of healing without drugs. He adopted many points from his great predecessors, Priessnitz and Schroth, and it is only within certain limitations that we can give him the credit of having created a new manner of healing disease, yet it must be acknowledged that this venerable priest was one of the most prominent and important advocates of the water system. He was a genius in the art of healing by natural processes, as were Priessnitz and Schroth; and he gains additional dignity as a healer of the sick, from the fact that he was a priest, whose position as such entitled him to respect. Had he been an ordinary healer by natural processes, and nothing more, he would hardly have become so famous.

We have to thank Kneipp for at least one novelty, viz., his douches, which have attained an almost world-wide reputation. They are the douches used by Priessnitz, but in a modified form, and they represent a most perfect application of water electricity.

They strengthen the electric properties of the nerves and muscles, and work upon the whole body, stimulating the activity of the respiratory and digestive organs, and promoting the circulation of the blood and the processes of assimilation. They take a very short time, and cost practically nothing, so that they are within the reach of the poor. Economy of time and money is attractive in itself.

Father Kneipp has been much blamed by the extreme orthodox adherents of the water system for combining with it the internal and external use of certain plants, which he knew by experience to have curative properties. These fanatics make it their principle to deny all knowledge of the properties of plants, and to disapprove of their use. They opposed Kneipp's treatment most energetically, not only because he made use of plants, but also because of the way in which he applied water, for in their zeal they far overshot the mark.

It is universally acknowledged that some plants possess valuable properties, and nature gave them to us for our use, in the same way as she gave us the other natural factors for the maintenance of life and health, viz., air, light, water and heat.



## **Plate IV.**

### **Methods of applying Water.**

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Fig. 1. Exercising in cold water. Kneipp's treatment.  
Explanatory text: page 535.

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Fig. 2. Nasal douche. (Injection into the nostril.)  
Explanatory text: page 570.

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Fig. 3. Foot sole bath.  
Explanatory text: 540.

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Fig. 4. Head bath.  
Explanatory text: 543.

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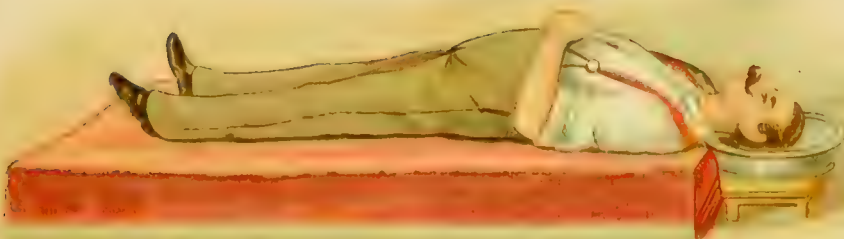
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



*Fig. 4.*





How can a vegetable diet be distinguished from an employment of the properties of plants? Yet the most fanatical advocate of the method of natural healing does not refuse to eat vegetables.

Some kinds of vegetables contain, beyond all doubt, specific medical properties in their leaves and roots—such are parsley, cabbages, asparagus, spinach, celery, radishes, cucumbers, etc. The advocates of the system of treatment by natural methods are the first to recognise this fact, but they do not therefore banish these vegetables from their tables. Why should they object to Father Kneipp's use of vegetable remedies? We must boldly say that it can only be through prejudice, for they have not grasped the first principle laid down by their opponent: "First test and then criticise."

At the present time a practical compromise has been made between the adherents of the strict water treatment and the followers of Kneipp's method, and all who are interested in the matter, and in the efforts now being made to introduce modes of living and of treating disease that shall be in accordance with nature, cannot fail to feel great satisfaction at it.

Father Kneipp had his own views regarding clothing. He disapproved of the use of wool, especially of woollen underclothing, and recommended the wearing of stout coarse linen or canvas, and his own experience led him to decide on the best qualities for wear. Underclothing, body and bed linen, are all made of the so-called "Kneipp linen," and also the cloths used for cold packing, stockings, socks, etc. These articles are all made in factories at Munich and Stuttgart.

Kneipp adopted the correct principle that the clothing should be soft and clinging, though coarse, for it must not interfere with the circulation of the blood, and it must allow the air to pass freely to the skin, and not hinder the free movement of air upon the body, which carries off the vapours that are emitted.

Kneipp's system of diet is extremely simple. He recommended a good and carefully prepared everyday fare, containing nourishment of various kinds. For strengthening purposes he recommended the so-called bran gruel (bread containing gluten), gluten bread. He forbade the use of ordinary coffee, but recommended instead malt coffee, which he allowed the firm of Kathreiner, in Munich, to prepare according to his instructions.

In spite of its great success, the Kneipp method has still many opponents; on the one hand the majority of regular physicians, and on the other the adherents of the various other systems of healing by natural processes. The former attack Kneipp's treatment because his method is not based on science; the latter regard his mode of treatment as rough, and wanting in individual attention. Whilst we are referring to the opposition offered by medical men to Kneipp's method, we may quote a remark made by Professor Winternitz, of Vienna, as the expression of a contrary opinion. He is the founder of scientific hydrotherapeutics, and when he was organising his cold water treatment of typhus, in 1871, he said: "The water cure, more than any other method of treatment, has had to contend with intolerance, contempt, and abuse of all kinds, like every other innovation, and every progressive movement which runs counter to custom or interferes with long-standing prejudice. The truth underlying this system will ultimately prevail and win recognition. The followers of empirical or experimental method; in hydro-pathy, for the last thirty years, have been recommending the treatment of acute feverish diseases with cold water. They were for a long time laughed to scorn as madmen, sinfully playing with life and death, but now we find the best physicians confirming what the rough empiric Priessnitz stated long ago, viz., that there is no better and simpler system of treatment than the water treatment in the case of feverish diseases."

Dr. Hirt, of Breslau, who is noted both for his knowledge of hygiene and as a contributor to the great work brought out by von Ziemssen, "Handbook of Special Pathology and Therapeutics," in the course of a public lecture on nervous diseases, alluded to Kneipp in the most friendly terms. Dr. Hirt had studied his method at Wörishofen, and acknowledged that the venerable old man had cured many thousands who were suffering from serious complaints. He said that it was unjustifiable for the medical profession to stand aloof from this man, who nobly practised the art of healing as a work of charity. Would that all members of the profession followed Dr. Hirt, and regarded Father Kneipp and his method from the same point of view! They could not refuse the recognition which the worthy priest has so honourably earned, although he did not seek it. He was a genius, a physician by birth, and a true benefactor to the human race.

## 28. The Kuhne Method.

"Cleanliness alone heals." (Kuhne.)

In the realms of science, or rather of attempts at reforming modes of healing, the name of Kuhne is almost as well known as that of Kneipp. Who is Kuhne?

Louis Kuhne is an unprofessional doctor in Leipzig, like his predecessors, Priessnitz and Schroth, and his celebrated contemporaries Rikli and Kneipp, possessed of the genius of healing by the help of nature, and originated a peculiar and quite independent system.

Just as the other men had first cured themselves, so also was he thrown as it were into the arms of the natural healing treatment by personal illness, and out of gratitude for the blessings of this method he became a teacher, then a past-master, of the new cure.

"After I was twenty," says Kuhne, "my body refused to perform its offices, and severe pain set in in my lungs and my head. First I tried medicine, but to no effect; moreover, I had but little confidence in such things. My mother, who had suffered for years, had often warned us repeatedly against doctors, to whom she owed her troubles, whilst my father had succumbed to cancer of the stomach, which physicians had been unable to cure. Then, in 1864, I read the announcement of a congress of friends of the treatment of diseases by natural means. They were a body of plucky men, who gathered around our never-to-be-forgotten Meltzer."\*

"I modestly asked one of the company what I could do for the lung pains which troubled me. I say humbly, for the state of my nerves at that time was such that I could not have found my voice in the presence of many people. He ordered a compress, which soon relieved me. From that time I attended every meeting of the same kind. In 1868 my brother was very ill, and obtained no relief from the 'Natural' Treatment, as it then existed. We heard of the successful cures of Theodore Hahn, at Waid."\*\*

"Having visited him, my brother returned some weeks after, much improved in health. Persuaded that the treatment

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\* A celebrated man, a native of Leipzig, who practised according to the laws of nature, but was all too soon removed from his sphere of usefulness.

\*\* A celebrated practitioner in Natural Treatment, who also wrote important books on hygiene; since dead.



followed was a good one, I also went through the same, with every hope of relief."

"In the meantime I had become worse; the inherent seeds of disease had increased, and the drug treatment had laid the foundation of other ills. At last I could bear it no more. Cancer had appeared in the stomach, the lungs were partly attacked, the nervous system in my head was in such a bad state that I could neither sleep nor work, and only found relief in the open air. I may say now, that although at the time I was fairly well-fed, and had a good colour, yet I was indeed but a poor specimen. And although I followed all the suggestions of the treatment by natural means — water and sun baths, packings, douches, diet etc. — I obtained no relief. By observing the laws of nature, however, I discovered things upon which I based the method which I have since practised. I thought out my own cure, and made the needful apparatus. The attempt succeeded, and I improved day by day; others who consulted me, and followed the same plan, were also satisfied; the apparatus proved excellent. The diagnosis of existing symptoms, as well as my announcement of future phases, as yet unfelt by the patient, but accompanying visible disease, all proved true; I became persuaded that my discoveries were not illusive. In the meantime, at the mere mention of the same, doubt, indifference and mockery repulsed me on every side, not only on the part of professional medical men, but more particularly so on that of men who strongly upheld and followed the laws of nature. To these I had gratuitously given my apparatus, in the interests of suffering mankind, but, without granting them an honest and serious trial, they discarded them and let them rot among dust and cobwebs."

Thus Louis Kuhne, according to this, was met at the outset by the prejudices of his natural opponents, and of those who still were followers of Priessnitz and Schroth. According to Kuhne, just as there is only one health there is only one disease, which shows itself in a multitude of ways. The disease itself results from the accumulation of substances incapable of nourishing and healthily sustaining the functions of the body. This undesirable material varies according to its nature and quantity, to the means of ingress, to the formation of the body and condition of the individual, and also to the degree to which the diseased substance impedes or disturbs the function of the organs. Nor is it

always present in the form of objectionable juices, but attacks the parts of the body assimilating itself to the living bodily substance, thus injuring, as it were, every inch of the part thus attacked. Further, Kuhne teaches how the presence of injurious matter affects not only the body generally, but will even cause actual differences in the formation, for instance, of the throat and the head. The neck is a miniature representation of the rump, and every organic change produced by disease, together with any visible alteration in the general formation, can be traced in the throat quite minutely. The expression of the eyes, the complexion, the appearance of the skin and hair, the construction of the skull, all help in diagnosing the seat of the disease, although it may be located in another part of the body.

This examination is called "knowledge obtained through the expression of the face." (For further information see Index.)

Kuhne also urges, that for the cure of this one disease, and to bring about its cure, one special treatment is imperative, and must be centred on that part of the body in proximity to which the undesirable substance has deposited itself, thence to spread eventually to other parts, especially in the abdomen. Here several points must be taken into consideration: the principal one is that the chief secretive organs, the bowels and the kidneys, require one special treatment.\*

Now, besides, the application of water to the abdomen, (which receives the greater part of injurious matter,\*\* according to the general laws of diffusion), other means could be used not necessarily acting directly through the skin. It is

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\* This consists, first, of a so-called "massage sitz bath." Then "rump" and "vapour baths" are resorted to. The latter are given in an apparatus which is constructed in such a way as to suit the sitting or lying posture. In these the head is left free; the body is wrapped up in a woollen blanket. (See the paragraph headed "Vapour Baths," in Part II.)

\*\* Kuhne experimented upon himself for years upon the elimination of toxins (poisons) through the skin. One fine day he was having a sitz bath in the old-fashioned way. The sun was shining upon his body, and he noticed the formation of little lumps on his abdomen; he rubbed himself, thereby increasing the "lumps." Then he performed the same operation under the water with a soft cloth, which brought out even more numerous small lumps. At the same time he felt relieved, and much more benefited by this treatment than by the mere bathing without motion. Thus he discovered the improved form of body bath, which, with friction of the skin, counts among the favourite and most successful of the modern hydropathic system.

also advisable to endeavour to induce a greater activity in the organism, without thereby irritating or impeding the working of the nervous system.

The part of the body to which the special water treatment was applied contains certain nerve ends, corresponding more directly than any others with the most important nerve centres. Hence a favourable working on the nerves of the abdomen would directly influence the whole system, like beneficial electric four-power, consequently there would ensue general increase of strength and additional vitality.

Besides the three baths before mentioned, those taken in the sunshine were also used. The second, a more important and essential point of the Kuhne cure, consisted in vegetable diet — all forms of alcohol, coffee, tea, tobacco, meat, in short, every irritant, was altogether forbidden.

The chief "friction bath" (described in Part II.), a most original method, partook of the form of ablutions, and was looked upon with dislike by many from some ridiculous notion of prudery. Ill-advised people, forming a considerable portion of the public, who condemn, a priori, without fair testing, were unanimous in their objections to Kuhne's method. The town authorities of Leipzig went so far as to condemn the rubbing bath as "indecent" and "injurious to health." But Kuhne, with his extraordinary powers of endurance and perseverance, faced all the prejudice and opposition, determined as he was, not to sacrifice the results of his long study and experience to idle talk. His discovery of the "singleness" of disease was an epoch-making one. The condemned bath was but one link in the long chain of his great discoveries, and he was determined to fight for his method, and to gain for the treatment the respect and acceptance which his wonderful cures demanded.

The friction bath, during which, as is described in more detail in my second book, the patient is rubbed in a particular manner, is not to be compared with other treatments in the old treatment cures by natural means, although it requires the use of cold water. Its action is not the same as that of the sitz bath, different from the Priessnitz compress, from the one used by Kneipp, and from the body packing. It imparts cool, refreshing influence to the internal parts, acts upon the nervous system, diffusing its benefits as it were instead of concentrating them in certain nerves or

organs, as is the case with other methods. It loosens the toxins (poisons) in all parts of the body causing fermentation; this produces feverish symptoms, which remove the acidity by the working of the bowels, the kidneys, the skin and the lungs — thus is recovery brought about.

This bath is to be avoided in cases of great bodily weakness, with persons given to fainting, and also where the patient is old. But as there are signs in the expression which plainly show whether the sitz bath is proving beneficial or not for the constitution under treatment, it is easy to judge the result. The Kuhne method does therefore not preclude individualising, but rather renders it imperative, which proves that those who would make people believe that every patient is treated according to one stereotyped plan are obviously in the wrong. And as no one is infallible, however, it is evident that even the Kuhne method has failed when the expression of the patient has remained unnoticed, or wrongly diagnosed. I should not dream of suggesting that this system of bathing is a universal panacea, nor should I recommend all patients to pass rapidly from an ordinary to an entirely vegetable diet, for some obstinate diseases have been known to resist the action of the massage bath; in other cases it has failed owing to the condition of the nervous system. Although the change from a mixed to vegetarian diet is often unattended by any inconvenience or ill effects with many who take the above-mentioned baths, and only a small percentage of patients suffer from the rapid change, that very percentage emphasises the need for individualising. If the body is called upon to adopt, for its healing and building up, forms of food which otherwise do not appeal to it in any way, but are necessary to accomplish the desired object, the enforced diet will for the time be assimilated and endured. The juices and the stamina of the body are so arranged as to change the material extracted from a mixed diet, therefore any difference made in the usual articles of food will naturally have a more or less important influence on the general organism. Amongst elderly people especially sudden change of diet produces disturbances, and crises which are sometimes fatal. The massage bath assists the body to adapt itself to the vegetable diet enforced by Kuhne, since it frees the patient from the toxins, which interfere with the natural healthy functions of the body. Still there are exceptions in which the sudden transition is not absolutely



imperative, and I am strongly in favour of a gradual change from ordinary to exclusive vegetable food during a Kuhne cure: for I think, with Horace: "Est modus in rebus, sunt certi denique fines," "be moderate in all things, and strictly draw the line." Of course we must not forget that with every kind of treatment strict dietary rules go hand in hand; but in the interest of the patient and of the cure alike, extremes must be avoided. The Priessnitz and Kneipp methods are not free from errors on the subject of diet, since one errs by over-feeding and the other allows too little nourishment — here again the individual must be considered. The co-operation of certain conditions of life requires the keenest observation, to bring about complete recovery by means of diet combined with other curative factors, for illness is nothing but a lack of assimilation brought about by an injurious mode of life, and can only be avoided by the natural assistance of air, light, warmth, water, exercise, rest and diet, working together for the benefit of the whole body.

These errors, which formerly existed in the Priessnitz and Schroth methods respectively, reappear in those of Kneipp, Rikli, and Kuhne. Independently of the dietary system, which leads Kuhne to limit patients to vegetable food, Kneipp says: "Meat once a day, and much food," and both reject the idea of massage and gymnastics. Kuhne despises packing, wrappings, injections; Kneipp avoids vapour baths. Rikli alone practises the light and air system, and disapproves of the water cure.

This is not as it should be, and the upholding of one system, without adopting what is good in others, cannot work the ultimate recovery of a patient.

It would therefore only be right to combine a Kneipp, a Kuhne, and a Rikli system, since they aim alike in curing diseases by some of the natural means before mentioned, and to preserve health by the same. To these means let us add a strict diet suited to the individual under treatment, with massage and exercise, and we are at once possessed of infallible remedies for the successful treatment of all diseases. Although Kuhne's method is an independent one, it is nothing but a link in the chain of the great popular treatment according to the laws of nature. Just as every living organism is closely linked to another to form one whole, so all these methods are essential parts of one another, founded on natural laws, for the healing of suffering

mankind; and the systems practised by all the above masters stand out in the past, present, and will do in the future, as a combined healing system which nothing could change or depreciate.

## 29. The "Privation" (or Hunger and Thirst) Curative Treatment.

The Schroth system, treated in Chapter 25 of the first part of my book, is identical with the so-called "Privation," or Hunger and Thirst or Regenerative Curative Treatment. To the lowly but intelligent peasant, Schroth, will ever remain the glory, as the founder, of the dietetic system. He it is who first proved by his wonderful cures that, in order to find the means of discovering the remedy for all kinds of diseases, neither university career nor great learning was needed, merely intelligent common sense and keen observation concerning the precepts of living nature. For it was Schroth's method which first thoroughly taught the art of healing, bringing into operation in his proceedings the essential principle of all organic life, the factor of all thriving and growth, moist heat, and laying down the rules for its systematic use.

In feverish, irritating, short, or acute cases, he applies wet linen bandages, which are changed as soon as they become warm — this in order to reduce and regulate the high temperature. In latent, lingering disease, without fever, in chronic illnesses, the same warmth is induced, together with a diet calculated to bring about feverish symptoms. These loosen and destroy the toxic substances, and bring about their elimination by the action of the internal organs so frequently mentioned here. By this means normal activity, and a natural working of the body, are re-induced, and recovery sets in. For, from the chapter headed "How can we protect ourselves from Illness?" it is evident that every complaint is caused by an accumulation of extraneous matter which the body has not succeeded in throwing off. This is hastened by the Schroth treatment, and, with restored health, the organs resume their functions.

Long-standing chronic illnesses can only be radically cured by the purifying action of high fever, as the celebrated Professor, Dr. Harless, Director of the Medical College

in Bonn (whom I have mentioned before) very well knew, for he was often heard to exclaim, on taking charge of a sick patient whose condition was not feverish: "Give me the means of creating feverish symptoms, and I will cure every disease!"

This means was discovered by the clever carter, Schroth, so that the Egyptian darkness in which medical science had lingered for centuries was suddenly cleared away.

The object of the Privation Treatment is the thorough cleansing of the blood and juices of the body; the removal of toxic accumulation, worked by natural means, and with due consideration to the vitality and recuperative strength possessed by the patient.

Further, for these chronic cases, the so-called "Introductory Cure" is used; this implies, about two hours after supper, when the patient is in bed, the application of the trunk or rump bandage. (Both these compresses are mentioned in Chap. 19; for placing them, however, see the second part of this work.) These are left eight or ten hours — in other words, until the morning. When first applied the sensation produced is refreshing and vivifying, for the altered and corrected temperature produces a beneficial heat between the compress and the skin, which creates the loosening power, needful to the lower organs and to the lungs to expel the toxin. The skin in acting not only increases healthy moisture, but induces elimination; the longer the duration of the compress the higher the temperature of the moisture, and the greater its purifying effect. The following is the first week's diet in the preliminary treatment.\*

Breakfast: Stale rolls, and barley water or thin gruel, slightly sweetened, and flavoured with lemon juice. This is taken in slow sips. Mid-day: Rice, semolina, barley or gruel, prepared with water and a little butter, and a stale roll. The slow sipping of barley water (as for breakfast) is allowed in the afternoon. At supper: A repetition of the mid-day course, or perhaps only the stale roll. If hunger asserts itself during the day, stale rolls may be indulged in.

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\* The diet in the complete treatment varies according to the condition, the constitution, the age of the patient, and the nature of the illness. The above regimen is the one practised in Lindewiese. In some establishments, where the same system is followed, slight variations ensue; for instance, in the first part of the time the patient may be given cocoa or milk for breakfast, and wheatmeal bread and fruit for breakfast.

No water of any kind is given to the patient suffering from chronic disease. When used for rinsing the mouth, or for washing, the water should be lukewarm.

In the second week the drink is reduced, whilst the other articles remain the same. The patient drinks only once, and that two hours after dining (mid-day); white wine is given, with water and a little sugar; it is slightly warmed, and must be taken by teaspoonfuls, accompanied by stale roll.

In the third week there is no change, except that the wine is undiluted.

The duration of this part of the treatment depends on the constitution of the patient. The degree of the disease and its nature also help to determine it. If the "introductory" plan does not work the desired change sufficiently promptly, the strict treatment is resorted to. This is the case with abscesses, etc., which threaten the destruction of vital parts.

The first part of the treatment rarely exceeds three weeks, often it only takes a few days. A longer period is needed for complaints produced by over-doses of medicine, cold water treatment, toxic substances and great accumulation of the same. The dry diet which characterises the strict stage of treatment would be too trying for such patients, and the danger of collapse is obviated by a course of intermediate diet: then the "strict" treatment is applied.

The whole body is wrapped in wet sheets at night: these are called three-quarter packings, the head, arms and shoulders alone being free. First comes the wrung-out sheet, then a dry one, further a blanket, then the eiderdown.\* (See Part II., Three-quarter Packing.)

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\* Wherever Schroth's complete packing is mentioned in this book, the cure of chronic disease by the "three-quarter packing" is identical with the former; and the latter expression is also its equivalent. Schroth applies the trunk wrapping (from the armpits to the thighs) before using the sheet. The manipulation is as follows: The upper end of the covering is placed on the pillow to reach well up to the armpits. On this creaseless blanket is placed a dry sheet, to keep the moisture from the former; then follows the carefully-wrung wet sheet — slightly lukewarm water being used in extreme cases — coarse linen is better than fine. The dry sheet and the blanket should be a little larger than the damp linen. Another folded sheet, wrung out, is placed on the body down the front as above stated. The shirt being turned up over the head, the assistant arranges the first compress, in a single fold on the back, doubled and trebled on chest and abdomen; then the ends of the wet sheet are closed around the body, not too tightly, to ensure free action of the lungs. The legs are enveloped and the ends folded over the feet. The dry sheet is arranged in the same manner, also the blanket, then



These packings have the usual beneficial influence. The dry diet causes the absorption of moisture; this decreases thirst and increases the flow of urine; the equalising temperature produces the warm perspiration at a quicker rate in cases of complete packing, acting in the frequently-mentioned and purifying manner, and that in due proportion to the time during which the patient is "packed."

Restored circulation of the blood brings about the natural working of the organs whose mission is to expel toxin. This process is made evident by the unpleasant odour emitted when the sheets are removed, the discoloration of the same, the urine which contains sediment, expectoration, possible diarrhœa, breaking out of the skin, and many other symptoms, which places the marvellous efficacy of such compresses beyond all doubt.\*

As a rule the patient is unpacked the next morning, whilst carefully protected by the eiderdown; rubbed with a coarse, dry cloth, and is left in bed for half-an-hour until the natural warmth of the body reasserts itself.

To avoid any danger of possible chill, the temperature of the room in winter must be maintained at night to 60<sup>0</sup> or 62<sup>0</sup> F. After rising, the patient should remain in the house a short time before going out.

Washing the body and rinsing the mouth demand, as before stated, the use of lukewarm water. The effects of using cold water during the cure are very bad indeed.

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the shirt is pulled down very carefully, and the patient is covered over with the quilt; this must reach up to the chin, and thoroughly exclude the air. Another blanket can be tucked around with advantage.

In catarrhs of nasal mucous membrane, sore throats, chronic colds, a throat compress is applied to aid the complete packing process.

Those suffering from internal complaints whose feet remain cold should be supplied with a hot water bottle, or the feet must be wrapped in a blanket, and not be included in the complete wet packing.

During menstruation, women are exempt from complete packing, but have a four-fold compress on chest and abdomen.

As soon as the activity of the pores is re-established and increased, and the system demands more moisture, separate wet bandages are applied to the legs, in addition to the above. This consists of wrung-out sheets placed three-fold over the legs, and over the first wet sheet, and reach up to the lower end of the trunk compress, and down to the ankles: each leg is treated separately. After this the sheets and blanket are replaced in the approved style.

\* The rump packing is sometimes alternated with the complete one; but all the proceedings work to the same desired effect.

The diet has been described, "slops" and stale rolls; of these he may have as many as six, but never overburden his digestion. The mid-day meal as described. The stale rolls help to absorb the toxin, which takes the form of a viscous fluid, which is carried off in the process of digestion. Schroth orders a roll to be eaten early in bed, the first mouthfuls to be ejected to dispose of the matter which forms in the mouth; after rising and rinsing the mouth, the "enjoyment" of the stale bread can be continued. If the mouth is very dry, thus rendering mastication difficult, a little wine may be taken to moisten the bread.

The strict treatment of Schroth is of great importance, as it works towards a better condition of digestion; though the restrictions are not exactly tempting, they are the most efficacious road to the desired end. It is the absolute dryness produced by the lack of drink which enables the stomach to attract the toxin and to destroy and eliminate them, by a process of combustion and elimination.

The temporary withholding of drink from the patient, in the middle course, is determined by his or her condition. A trial is made on the first day; on the following afternoon, one or two glasses of lukewarm wine are slowly sipped. The next trial implies two days, the third, three days without fluid. Many reasons justify the choice of the afternoon (two hours after eating) for the drinking process, which must be very slow and gradual; the roll, by the way, is eaten dry and never dipped. Should fever set in, or the summer temperature be high; or again, if the pores do not sufficiently absorb the moisture produced on the body, an additional quantity of wine is prescribed, or an extra "trunk" compress is applied during the day, to reduce the thirst. This is put on about an hour-and-a-half after partaking of the mid-day meal, and may be left on till dry, so long as it is removed two hours before the night packing.

This allowance of wine on drinking days in the Schroth treatment has often proved a stumbling block to "temperance" folk and vegetarians, and caused many unjust criticisms. But these things require serious consideration.

The author holds wine, like other alcoholic drinks, as an irritant, but recognises its value in this cure. A good, light, country wine has a warming effect, which acts beneficially on the coating of the stomach, and increases the working powers of the muscles, etc. The temperature of the

stomach requires heightening to ensure better digestion, and a moderate amount of pure wine can but prove of great assistance in this first aim of the Schroth system. Increased activity of the muscles of the stomach encourages the functions of the organs of the abdomen. Wine improves the circulation, increases the natural warmth of the body; the activity produced induces perspiration and loosening of the toxin, and brings about a mild amount of irritation. By this means there is more excretion in the shape of phlegm, thick urine, nauseous perspiration, sometimes constipation, etc.

Evil effects after taking wine assume the form of faintness, sickness, etc., and are caused by drinking cold water, which renders the coating of the stomach lax, or by drinking the wine allowed in long draughts, as many who are tormented by thirst will do. The stomach, unaccustomed to irritants, naturally resists a large amount of fluid, which is and remains an irritating factor. Patients who suffer from congestion fight against the wine allowance, fearing that their sufferings may be thereby increased. But this is not so. We have already shown how all congestion or rushing of blood to the brain has its cause in some unfavourable symptoms in the abdomen, stoppage, accumulation, impaired digestion, etc. These bring about an impure state of the blood and bad circulation; the wine taken in sips according to Schroth's plan removes the internal trouble, and works in the manner so often mentioned, so that it is obvious that the patient injures himself by refusing the wine.

The proof of the stimulating properties of wine lies in the prohibition of wine on the part of medical men in cases of syphilis, gout, etc. These diseases reassert themselves after medicinal treatment (which purports to "cure" but only temporarily suppresses the trouble) by indulgence in wine.\*

This clears all doubt as to the power of wine. Schroth does not aim at suppressing disease for a time, but by means of all before-mentioned plans expects complete recovery; thus his use of wine was ordered with forethought and intelligence, as an important principle in his treatment.

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\* If the doctor knows that such complaints are brought on by over-good living, or are caused by over-indulgence in any irritant, he only suppresses the latter, and subdues but does not cure the evil. Yet it is called a cure.

"Explain to me, Count Oerindur,  
This strange rift of nature."

But to return to the "principal treatment." In order to lessen the monotony of the menus, another dish may figure on drinking days. It consists of rice, or semolina, boiled, then strained, mixed with breadcrumbs, one egg, a little butter, a little salt, and baked in a mould. This is served with a sauce, made from equal parts of wine and water, slightly sweetened and thickened with feculina. This dish is for the "glutton" during the hunger and thirst treatment.

If the dryness of the mouth is too intense to eject the accumulation of phlegm, sips of wine with a little sugar are allowed daily until the desired result has been obtained; and indeed many modifications may have to be made in diet and treatment, which makes it imperative that a competent man, understanding the Natural Curative Treatment, should be present.

After a period of from five to eight weeks, the so-called "Interval" takes place. This begins when the tongue is cleaner, and a desire for meat is manifested. It lasts one or two weeks, and the patient who has proved docile is rewarded for perseverance and self-control by being allowed rice, etc., boiled in good meat broth. On the second day half a pigeon, or veal, or chicken, is served with the above; on the third day vegetables cooked in broth, and any kind of meat, except pork. The meat must be roasted, butter taking the place of dripping, etc. Stewed fruit prepared with wine, apples, plums, pears, cherries, etc., may also be taken. Seasoning, onions, pickles, vinegar, and acid articles of food, are forbidden. Wine (half-a-bottle) may be taken in sips two or three hours after the meal. Such is the feast of Lucullus which characterises the "Interval." Meat and vegetables are, however, to be eaten in moderation, accompanied by the stale rolls; one of the latter can also be had, if hunger asserts itself too strongly before meal-time. At breakfast, cocoa is allowed with the roll.

The "Interval" diet is, however, at once stopped, if any relapse occurs; the patient then returns to the "strict" treatment until the appetite is regained. Then the "Interval" may be resumed. During this, the trunk packing alone is used; only if the temperature rises, and great thirst manifests itself, is the whole packing applied.

After the pause comes another strict treatment for five to eight weeks; again an interval of eight days or a fortnight, and so on. until ensured recovery demands the final treatment.



With each interval the appetite grows, and it is a temptation to indulge too freely in the reformed diet. To obviate this, it is advisable to serve a light luncheon during the morning, in the shape of a sandwich, a glass of wine, or warm beer with an egg beaten up, or a boiled egg.

Bodily and mental over-exertion is naturally undesirable during the treatment, but a moderate amount of open-air exercise, even in unfavourable weather, is recommended, as well as some indoor occupation, and light interesting reading. The use of tobacco is forbidden, and the patient must not worry over his or her ills; the doctor will do that with a good result. This treatment must not be undergone at home; there so many things hinder which recovery. The illness may develop unexpected phases, demanding immediate modifications in the method; the home influence and surroundings are not conducive to the proper carrying out of all instructions. It is necessary to choose a well-conducted nursing home, where the Privation Treatment can be carried out thoroughly. The Schroth treatment induces frequent changes in the condition of the patient; phases resulting from turning a chronic disorder into an acute one, during which the patient is anxious, discouraged, and, oftener than not, suspicious of the means employed, the presence of a responsible and trustworthy doctor is then urgently needed, to help the sufferer over such critical times. After days of gradual improvement, there come hours and days when all sorts of troubles torment the invalid; weariness, low spirits, depression, restlessness, excitement, anguish, head aches, feverish symptoms, shiverings, etc., to say nothing of swellings, increase of secretions, expectoration, etc. These phases are all in the programme, so to speak, and not necessarily drawbacks, but they are very distressing. A little wine and water may be taken in such cases, or if the relapse is a bad one, some barley water, sweetened and flavoured with lemon juice, until improvement sets in. It must always be remembered that such eventualities are part of the treatment, and therefore unavoidable. (See Chapter "How to protect ourselves against Disease.")

The most ordinary symptoms are intolerable thirst, which is, however, greatly reduced by the wet packing; a fœtid, sticky, unpleasant taste in the mouth, which becomes sour, bitter, or metallic (the latter with those who have previously taken mercury medicinally), and lastly, a salty

taste, which heralds improved digestion; a dry, furred tongue, the appearance of which alters, as the toxin is ejected, from brownish to yellowish, and even black, and on awaking it is frequently covered with a thick, whitish, tough and furry substance.

As recovery manifests itself, the tongue becomes so much cleaner, that the above substance, visible at the tip and edges, gradually recedes and disappears. The moist tongue then resumes its natural healthy colour.

As the purification of the body advances the taste improves, and the patient who is on the way to recovery is generally conscious of a slightly sour, salty flavour; his breath has no unpleasant smell and his gums are firm and red; all of these are signs that the digestion is becoming normal. Those who suffer from indigestion, and especially those who have long had to contend with its discomforts, are apt to be covered with eruptions of various kinds and colours. When they are under treatment, it is common for thick, greenish, yellow or grey lumps, filled with matter, to work their way out. There is sometimes troublesome vomiting, which, like the appearance of the eruption, is preceded by restlessness, excitement, headache, heartburn, etc. At the beginning of the treatment the appetite fails altogether, so that three or four small rolls of bread daily satisfy any hunger that may be felt. A feverish restlessness, oppression and excitement, is common, combined with great irritability, discontent and sensitiveness; the patient is depressed, weak, and exhausted, his extremities are cold, his sleep is disturbed, and he suffers from flatulency and from pains in the loins and limbs.

These are the unpleasant, though not dangerous consequences, that are inevitable when the diseased matter is roused before it is driven out of the body. An apparent aggravation of the disorder is unavoidable, if the desired effect, viz., the restoration of health, is to be attained. As recovery sets in, the unpleasant symptoms diminish and finally disappear.

In the course of the treatment a rash frequently occurs, but unless it is very violent, there is no need to alter the treatment; if it should prove very troublesome, it may be necessary to stop the wine that has been prescribed, and to allow the patient to take other liquids until the rash disappears. He may have lukewarm gruel with sugar and

lemon juice, but only in small quantities, and when he is thirsty. As the rash dies away under this diet, the lemon juice may be omitted, and instead of it a third part of wine may be added to the gruel, and gradually the fluid must be given up.

The quantity of urine passed is less at the beginning of the treatment, but as it goes on it is not uncommon for about a pint or more to be passed in twenty-four hours, although the patient has drunk nothing whatever. The urine is reddish, and if kept becomes cloudy after a time, as if it were mixed with clay or milk, or with something red. Sometimes a sandy or slimy deposit is formed, the substance and colour of which varies.

This elimination of diseased matter in the urine is an effect of the natural process of combustion, induced by necessary feverish symptoms, and artificially accelerated by the abstinence treatment.

If the patient who is under strict treatment drinks any water or beer, his urine at once becomes clear, and the diseased matter ceases to be discharged by way of it; if he again submits to dry diet strictly for a few days, the fever reappears, and the urine again becomes turbid and discoloured.

Schroth regards this fact as the best evidence of the beneficial action of the fever produced by the dry treatment, and also as disproving the allopathic theory that it is an aggravation of the disease and ought therefore to be repressed. As the strict treatment proceeds, the urine becomes clearer and increases in quantity, so that even on the days when the patient drinks nothing, he passes from two to three pints. The deposit diminishes, and the urine is at last so clear, that even if it is left standing for two days, it remains unaltered and has a straw-yellow colour. The constitution of the urine and the appearance of the tongue show when the so-called after-treatment may begin.

A very characteristic feature is the fact that in many cases there is no action of the bowels for days, or even for weeks. When a motion is passed it is hard and lumpy, often covered with matter or streaked with blood.

This inactivity of the bowels is a critical feature, and generally causes no particular discomfort, and nothing need be done to remove it. In certain forms of disease constipation alternates with diarrhœa, which is accompanied by

pain in the abdomen, the stool being slimy, discoloured, and very offensive; patients who suffer from hemorrhoids often pass blood and matter. After this diarrhœa an improvement generally sets in, and the unpleasant symptoms diminish, especially in the case of patients suffering from cerebral or pectoral congestion. A bad digestion is generally the cause of ear and eye troubles, and these are greatly alleviated after a severe attack of diarrhœa. In some cases the diarrhœa only appears when the after-treatment has begun, and the action of the bowels thenceforth becomes regular, being assisted by the meat diet that is then prescribed, so that the convalescent passes a soft, easy motion once or twice daily. The body naturally becomes thinner under the hunger and thirst treatment. The curves become angles, the muscles are relaxed and softened, the stomach, which at the beginning is often swollen and sensitive to pressure, grows flat and insensible, and it is possible to trace a sort of attraction felt by the surrounding parts of the body to the region of the stomach; the peristaltic movements of the stomach, and a pressure and activity in the digestive organs are quite perceptible, especially at times when only the body packing is applied, in order to draw towards these organs the diseased matter which has been dissolved during the complete wrap, but has not passed out altogether through the skin. None of these unpleasant symptoms need cause anxiety, for the restorative treatment aims at renewing the substance of the body, and this is only possible after the original substances, both solid and liquid, have been completely eliminated.

In the case of women and girls, menstruation generally ceases during the course of treatment, but no discomfort is experienced, and no anxiety need be felt, for as soon as the patient enters upon the stage of recovery the monthly period will return. Old eruptions of all kinds, for instance, wet herpes (or tetter), discharge more than usual at the beginning of the treatment, but gradually they dry up and peel off, so that the skin resumes its normal appearance. Gatherings discharge a good deal of matter at first, afterwards less, and they acquire a healthier appearance, and finally heal without leaving any noticeable scar. Tumours, swellings, cysts, and all other internal and external growths, become soft, diminish in size, and are absorbed and disappear. In the case of syphilitic patients, sores that have long been



healed often break out afresh, and discharge matter, but after a short time they heal again and leave no scars.

When the various symptoms of disease have altogether or very nearly disappeared, after a course of strict treatment, the patient may be regarded as having completed the purifying or cleansing process, and may now go on to the after-treatment, which aims at accustoming him gradually to his ordinary way of life.

The whole body packing, and also the compresses, are applied less often, and finally not at all. The diet is that prescribed during the preparatory treatment, then that permitted during the "Intervals," and finally ordinary food, but of a simple nature, is allowed. At dinner only one or two dishes may be served to the patient, who is strictly forbidden to drink anything at the meal. In some cases a glass of wine may be allowed, but never water. If he suffers from thirst, he may drink one or two glasses of water about two hours after, to accustom himself to taking fluids. Errors in diet are particularly to be avoided during the after-treatment; nothing that is sour, highly-spiced or salted, is permissible, and the return to ordinary food must be slow and cautious.

The patient must exercise self-control, and eat very moderately, for the acute hunger that he will feel will prompt him to take more than is good for him. After several weeks, the caution in this respect may be somewhat relaxed.

When Schroth saw that a patient was gaining strength under the after-treatment, that all symptoms of disease had disappeared, and that his eyes were bright and clear, his sense of smell and taste in good order, his skin and hair soft and glistening, he judged that health had been restored; and when the after-treatment had been carried on for two to four weeks, he subjected his patient to a test treatment, to convince them both that the body was completely free from anything likely to cause disease. This test treatment required the patient to return for two or three days to the dry treatment, with wrapping of the whole body at night. Not the smallest quantity of fluid was allowed. If the urine remained clear, light in colour and without deposit, and the tongue moist and red, the experiment was regarded as successful, and the patient was pronounced cured. Otherwise he was advised to return to the strict treatment for a time, and then to the after and test treatments until satisfactory results were obtained.

The amount of open-air exercise taken during the after-treatment depends upon the strength of the convalescent. There is no need of tonics to restore his strength, in fact they should be strictly avoided, as likely to prove injurious. He must also be warned not to drink too much, especially water, as it retards the process of renewal of the blood and other fluid constituents of the body, rendering them too watery and thin, so that the body, as a whole, suffers from want of nourishment, and remains without regaining strength and energy, unable to resist injurious influences.

Schroth's method requires the strictest moderation in drinking during the after-treatment. In the case of most chronic diseases it is impossible, for even the most experienced physician, to determine how long restorative treatment will need to last. Its duration is affected by the age, strength and constitution of the patient, by the duration, kind, and degree of the disease from which he has suffered, and by the traces left of previous medical treatment.

The process is very slow after some nervous diseases, after rickets and scrofula, mercurial poisoning, hemorrhoids, long-standing gout and joint diseases, loss of power, caries of the bone, cancer, etc. A great deal depends, too, upon the will-power, resolution, patience and endurance of the patient. If he possesses all these, he may hope, for the restorative treatment has proved effectual even where chronic diseases have been of long standing, and recovery, though slow, has been sure. The pain and discomfort are soon forgotten in the satisfaction of having regained the health that had been lost, even though the recovery required self-denial, hardships and pain.

In cases of acute disease there is no need to apply the preparatory treatment; in fevers the whole body is enveloped in sheets, with or without local applications, such as special packing round the abdomen or the loins; the diet is strict, but when perspiration sets in, the patient is allowed a small quantity of liquid.\*

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\* In feverish diseases, Schroth generally uses the so-called "whole packings" of the "Natural Curative Treatment." The arms are not left free, but are packed with the rest of the body, so that the moist heat may act on the whole frame, and have a speedy and successful result. In chronic diseases, on the contrary, it is usual to begin with the "three-quarter packing," as delay seldom is a source of danger in these cases, whereas in those of

Damp wrappings are applied to the whole body in cases where the disease is either acute or threatens to become so. The number of thicknesses varies according to the degree of fever — it may amount to four, if the fever runs high. The patient remains wrapped up until he feels uncomfortable, or until the cloths are dry; he can take some nourishment during the “packing,” and it is very important to remove the coverings cautiously, as much as possible under the bed-clothes. If the fever is renewed, or excitement and restlessness show themselves, the proceeding is repeated until the patient’s temperature is normal.

If it is desirable to affect especially the chest or the abdomen, a wrapper may be laid on the part, and then the damp linen sheet may be wrapped round the patient, and he may remain thus the whole night.

In acute cases constipation must be relieved by means of enemas, which Schroth orders to be given lukewarm, and olive oil and salt may be added to them to increase their efficacy.

If the feet become too cold during the packing, a hot water bottle may be applied to them.

In diseases accompanied by fever, which run their course quickly, the appetite often fails altogether, and there is no need to force nourishment upon a patient. Should he ask for food, he may have barley, rice, groats, oatmeal, or toast simply boiled in water, with a little butter and salt. As he advances towards recovery, and his tongue becomes cleaner, he may have vegetables (with the exception of some indigestible kinds of cabbage) cooked in weak broth, and he may eat toast or biscuits. Later on he may have boiled pigeons and chickens, stewed veal and venison, peas, easily digested milk puddings, stewed apples, pears, plums or cranberries with sugar, etc.

At the beginning of the illness the best drink is made by boiling oatmeal in water, or water mixed with a little lemon; raspberry or cherry juice may be given. If the patient

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acute illness, prompt action is necessary. Moreover, a patient whose whole body is “packed,” including the arms, is apt to be nervous at being left to sleep alone, as he would be unable to release himself if it were requisite. If sufferers from chronic diseases are in a state demanding some treatment of the arms as well as the nightly three-quarter packing, each arm may be packed separately, first in damp towels and then in a woollen bandage, so that the patient has no difficulty in moving.

suffers much from thirst, cold water will be best for him; and if the fever is very high, let him drink spring water, fresh and cold, but only slowly, and in sips. As he recovers, and is allowed to eat meat, he may have a cup of cocoa or warm beer, and later on a glass of ordinary beer, provided that it is light and not "heady."

I have now finished my explanation of the Abstinence Treatment. We may sum it up shortly by saying that the treatment, in the case of chronic diseases, consists in taking no liquids, and in the application of moist heat. The latter causes the fine capillary vessels in the skin to become active and to expand, thus enabling the fluids in the body to pass into them, and so a quantity of diseased matter is brought under the action of the skin and is given off through it.

The patient is required to abstain from drinking anything, in order that the blood and other fluids may lose a large proportion of the water which they contain, and this, by artificially increasing the process of assimilation, produces a feverish activity in the interior. The blood becomes thick, and consequently there is an absorption of moisture from the diseased organs.

The wine prescribed on the "drinking days" increases the activity of the nerves, and makes the blood circulate more rapidly. The mode of treatment described in this chapter is certainly not applicable to every patient as a remedy for every kind of disease. It is not an universal remedy any more than the other modes of treatment that we have described. In suitable cases it may be used with excellent results, but in others it is injurious, and it should never be applied in its original form where the patient is advanced in age, or his strength is very greatly reduced, or the process of decay has gone too far. In these cases we must have recourse either to a much modified form of this treatment, or to the "Combined Methods of Natural Treatment." (See p. 282) For, where it is necessary, the desired result of removing the fluids of the body may be attained without torturing the patient with thirst, and an increased action of the skin may be produced without the tedious wet packings of the whole body at night.

If the patient is quite capable of a strong reaction, and has no organic degeneration; if he is young or middle-aged, and is fully determined to persevere until a complete purifying of the body has taken place, then let him pluck up his



courage, allow himself plenty of time, arm himself with endurance and patience, and submit to a systematic course of abstinence. In many cases the patient has no choice but to submit. Schroth's process is especially beneficial to sufferers from long-standing mercurial poisoning, combined with disguised syphilis, old skin diseases, rickets, scrofula, loss of power, cancer, caries, hypochondria and hysteria, and gout, with the peculiar degeneration and functional disturbance to which it gives rise.

That the so-called "Combination of Natural Treatments" produces excellent results is certain, and the Author ventures to quote a case from his own practice in proof of its efficacy. The patient was a lady of seventy-two, who was suffering from inflammation of the periosteum (the skin covering the bone). She had been already given up by physicians, but the Author succeeded in restoring her to health in a comparatively short time, by means of the combined Priessnitz and Schroth treatment. For an ordinary case of tuberculous dyscrasia I should have no hesitation in prescribing a modified form of the abstinence treatment, to promote the new formation of the liquid constituents of the body; but my patient was too old and feeble, and her vital and recuperative powers were at a very low ebb, so that the abstinence treatment was out of the question, and would have speedily caused her death. The case is, in other respects, an instructive one, and I take the liberty of describing it in detail.

"On March 5th, 1891, I was summoned to attend a lady. She was the wife of a retired teacher of Jewish extraction. I found her in bed, with her left arm swollen, stiff, and powerless. She told me a long tale of suffering; a long life of work, anxiety and trouble lay behind her, and now her strength was exhausted. Some months ago her arm began to be painful, especially at the elbow, and she lost the power of moving it. A general weakness and exhaustion had caused her to take to her bed, where she had been lying for several months; she had tried many remedies in vain. The physicians in attendance upon her had prescribed lotions for the arm, and medicines to be taken internally, but with no result. She consulted a specialist, and after he had applied his tinctures and powders for a considerable time, he declared that the medical profession knew of no scientific remedy for diseases of that kind, and therefore she

had decided to try the water treatment. I asked her what the doctors had said regarding the nature of her complaint, and she replied that some had called it gout, others pronounced it a rheumatic swelling, but most had given it no name at all.

A very learned member of the profession had thoroughly examined her, and when she broke the solemn silence after the examination, and asked to what conclusion he had come, he answered, in pathetic tones: "My dear lady, you had better not know what is the matter with you." She was unable to restrain her annoyance, and forgetting all respect for his dignity, she replied sharply: "Because you do not know what it is." The lady gave vent to her feelings of indignation against the medical profession, although, during all her life, she had never questioned the skill of its members.

I remarked to her that they had failed to help her for two reasons — they had not recognised her complaint, and, had they done so, they had not the means to restore her to health, for the natural method of treatment alone could effect a cure in very complicated cases. Even in the exceptional cases where no human aid is of any avail, the natural method generally succeeded in alleviating pain — but I hoped, with God's help, to restore her to perfect health.

I carefully released the swollen arm from its various woollen coverings — as far as I remember, four shawls had been wound round it to keep it warm (!) — and I examined it closely. A slight movement at the shoulder was, still possible, otherwise it was quite stiff, swollen, and extremely painful. On the inner side, just above the elbow joint, was a little scar. The patient told me, in answer to a question, that it was due to an artificial fissure. This is a gathering produced by a slight operation, to provide a means of egress for diseased matter. A pea or bean is inserted to keep the wound open and prevent it from healing. At one time the humoral pathologists of the allopathic school were very fond of using artificial fissures. We had found the cause of the disease. The patient had taken out the pea one-and-a-half to two years before, and had allowed the fissure to heal, so that the diseased matter, which had for years been accustomed to make its way to this spot, could no longer find an egress. This artificial production of matter, and the

attraction of all the diseased fluids of the body to one place, had completely changed the patient's natural constitution. The diseased fluids continued to make their way to her left arm, but no longer found an outlet, and the recuperative powers had failed too completely for them to make an outlet for themselves, hence they produced at first local disturbance, and afterwards a derangement of the circulation. The subsequent result was a chronic inflammation of the periosteum at the elbow and along the upper part of the arm, affecting the surrounding cellular tissues and the parts connected with them, so that a general weakness and exhaustion followed, in consequence of which the patient took to her bed.

When I first saw her she had no appetite at all; the bowels acted irregularly, often at intervals of three or five days, when a hard lumpy motion was passed. The sleep was disturbed, and the disposition apathetic.

I had to regard my patient's vital power as a fire on the point of going out, glimmering very faintly. It had to be cautiously fanned into life, and made to burn better as she advanced towards recovery.

It was my business to bring her body into a condition capable of throwing off the enemy that was attacking it. She needed a certain amount of strengthening to enable her to resist the so-called natural crises, which occur in the course of the process of eliminating disease, although this elimination was of course my chief aim.

When the natural treatment is applied, the resolution and elimination of diseased matter can accompany the strengthening process in such a wonderful way, that the treatment which aims at the resolution of diseased matter tends at the same time to eliminate it and to impart strength, whilst treatment intended to be strengthening serves to resolve and eliminate diseased matter.

In the economy of nature everything obeys certain harmonious laws, and so, in the natural treatment of disease, the laws stand in a definite harmonious relation to one another, and act reciprocally upon one another, one completing what is wanting to another, and governing the physiological processes that go on in the human body. To investigate these laws, and to avail himself of their action when these physiological processes are interrupted, is the work of the healer by natural treatment. He seeks to re-

move disease by devising a mode of treatment calculated to restore the harmonious working of all the parts of the body. He must acknowledge that hard and fast rules are impossible, for nature does not produce any two things exactly alike, however much they may resemble one another. A disease never takes exactly the same form in two different individuals, at the most its forms will be similar. Hence the art of healing is not a science with fixed laws to which the real facts are subordinate, but it is an art with no hard and fast rules and modes of procedure whereby to diagnose and treat every case of disease. In applying the natural treatment, it has to be adapted to the individual requirements of each case, and the art of applying it properly is based upon regarding the patients as individuals. Much experience is necessary, and much practice, and, above all, much intelligence. I had before me an opportunity to show whether, as healer by profession, I had mastered the art of healing. My test case was an old woman, given up by the physicians and retaining very little vitality.

The treatment began. I ordered the whole body to be rubbed down every morning with water of a temperature between 82° and 86° F. During the day wet bandages, to be applied round the body at a temperature of 73°, to be renewed as soon as they became too warm. To the left arm I applied compresses of a temperature between 73° and 77° F. — eight to twelve thicknesses of linen covered with wool — these, too, were to be renewed as soon as they became hot. Every other day a vapour bath lasting a quarter of an hour was given to the arm, and every third day a vapour bath given in bed, followed by rubbing down with water of 77°—81° F. At night a bandage round the body, with an extra compress on the abdomen below the umbilicus (navel). The legs to be packed at a temperature of 66°. These packings to be taken off as soon as the patient woke, whether at night or in the morning. The arm compresses to be renewed during the night. Strict diet, not stimulating, and as dry as possible. No meat, wine, beer, coffee or tea. Fresh air day and night. I must acknowledge that I seldom have had such an obedient patient. She gave me her entire confidence, and did everything, without any exception whatever, to carry out my instructions, which I gave to the best of my knowledge, and her obedience, confidence and patience were rewarded beyond all expectation.



Within a fortnight the arm began to improve, and an abscess formed at the elbow joint, below the artificial fissure scar, and in the course of a few weeks it attained the dimensions of a crown piece. At first it discharged a great deal of offensive matter, sometimes mixed with blood; and it assumed so ominous an appearance, that many allopathic physicians would undoubtedly have diagnosed it as cancer. I was somewhat anxious, as I had diagnosed tuberculous dyscrasia, and it was by no means impossible that it might develop into some form of cancer. In the case of Jewish patients, it is particularly difficult to determine what course a disease will run. With them an apparently innocent and harmless symptom suddenly and without warning becomes a source of danger and anxiety, whilst, on the other hand, what seems to be a dangerous symptom passes away and leaves no results. This is due to some peculiarity in the circulation and nervous system of the Jewish race, and has not hitherto received the attention which it deserves. The patient was a Jewess, and this fact added considerably to the difficulty of treating her case.

In course of time the abscess assumed a more healthy appearance, and my fears of a tendency to cancer diminished. The general condition of the patient improved daily from the time she began my treatment. The easily digestible vegetable diet, combined with the soothing use of water applications, restored her powers of digestion, which had completely given way. Abundant perspiration, lasting almost the whole night for several weeks, carried off the elements likely to produce disease by the skin, the natural organ for their elimination; the body was relieved, the assimilative process accelerated, and the patient slowly recovered a relatively high degree of health.

She grew better every day. At the beginning of June she began to get up; by the middle of the month the wound in the arm had healed of its own accord. The arm was still useless, but a course of gymnastic exercises, devised for the purpose, gradually restored its powers. At the end of June, 1891, my patient celebrated her golden wedding in perfect bodily health and mental activity. I was invited to the gathering, and drank a glass of wine to the health of the good old couple. Some of the allopathic physicians, who were on friendly terms with the family and had given up the lady as incurable, appeared in my absence to congratulate her.

But I was unable to find out in what terms they had expressed themselves regarding the treatment of the "quack," Platen.

### 30. The Universal Strengthening and Restorative Treatment.

There are debilitated conditions of the human body which cannot be traced to any definite disease, and manifest their existence in a general loss of strength, a diminution of the muscles and of the vital energy, and in listlessness, weakness, and other similar symptoms.

This state is scientifically known as *marasmus*, i.e., consumption or decay. It is due to a failure in the process of growth, and proceeds from two kinds of causes. Either the body has been deprived of the conditions necessary to its maintenance in health, so that sickness has resulted, or it is suffering from an excess of stimulants, especially from too much food and the use of drugs.

The reader must have learnt from many chapters of this work that there are certain conditions essential to health, viz., wholesome food and lodging, clothing and bedding not impervious to air and moisture, air, light, warmth, exercise and rest in due alternation. We may add to this list of conditions essential to life, care of the intellect and disposition, and cheerful stimulus to thought and imagination. Imperfect enjoyment, or the absence of these indispensable factors to health, or even the absence of some of them, will produce a weak state of body sooner or later, according to the disposition and circumstances of the individual. Excess of many kinds, sitting up late, long standing loss of blood and of flesh, diarrhœa, poisoning by drugs, etc., often produce listlessness and weakness. Where deprivation of the necessities of life, want of interest, loss of substance, etc., have caused the debilitated state, the body of course requires to be supplied with what it has lacked, if it is to recover its vitality. These lacking stimulants must be supplied, however, with the utmost caution, as the irritability of the nerves is greatly increased by the physical weakness, and want of caution might be very injurious. In debility due to privation, the human organism must be regarded as a withered plant, which would be killed outright by heavy rain and

bright sunshine, but a moderate amount of moisture and light may bring it back to life and enable it to bloom afresh. The sufferer from debility requires easily digested food, not too stimulative, and he must beware of thinking that an abundance of so-called strengthening food will restore his strength more quickly. To indulge in this would cause too violent an excitement in the system, which is too weak to assimilate such food in large quantities. Every alteration in our nature must proceed slowly, and the weaker the patient the slower is the process.

For breakfast the patient may have milk, preferably fresh from the cow, if it is known to be healthy and is fed naturally. He may have wholemeal wheaten bread, white bread or biscuits, and stewed fruit. Also malt or barley coffee, with milk and sugar, cocoa, porridge, etc., may, under certain circumstances, be allowed at breakfast. (See "Food for the Sick," in the Index.)

For dinner he may have vegetables boiled in water, and prepared with a little salt and butter; rice, groats, barley or oatmeal, boiled in milk or water; stewed fruit, poultry, game, fish, etc., with white bread. (See "Food for the Sick.")

For supper he may have the same as at breakfast. Good fresh water may be drunk as required, and fruit may be eaten during the day. Meat is allowed only at dinner, and then in very moderate quantities. Fat meat, coffee, tea, tobacco, wine and beer are forbidden. Should constipation occur, it is treated by enemas.

The patient suffering from debility is advised to breathe as much fresh air as possible — here there is no danger of excess. If the temperature and season admit, he must be much in the open air, lying or sitting, as his state of health allows, and from time to time taking a little exercise. He needs much rest, and bodily exertion will only increase his weakness if it is not exactly adapted to the strength that he has. In winter he may sit in an airy, well-ventilated room heated to 66° or 68° F. When he is in the open air he may practise breathing gymnastics, i.e., he places his hands on his hips, or crosses them behind his back, and then breathes in the air slowly through his nose, holds it in as long as he can, and then lets it pass out. This exercise should be taken two or three times daily, and more frequently as he regains health. The so-called lung apex breathing may also be recommended. It consists in folding

the hands behind the head, and then drawing a deep breath. The practice of taking long steady breaths of air when out of doors is very beneficial. (For details, see "Breathing Exercise," in the Index.)

The patient must have light, but not sit exposed to the sun's rays longer than is needed to bring about welcome warmth. As soon as the so-called "sun bath" produces restlessness, the person under treatment must move into the shade. If great weakness exists, the ordinary amount of clothing must be worn; as strength returns, let the feet be bared up to the ankle, and so on, until the whole body bathes as it were in the sun and air. (See "Light and Air Bath.")

Quite as advisable is a sunny, dry, cheerful, clean and quiet residence for the patient whose strength is to be increased. A proverb says, "The doctor enters where the sun is lacking" — porous bedding and clothing, sleeping with open windows form part of the cure. No more eider-downs, the source of aches and ill-health; no high collars, tight neckties, tight lacing, high heels and other fashionable follies. In short, away with everything that could check perspiration, circulation, the play of the air upon the skin, etc. (See further details, under "Domicile," "Beds," and "Clothing," in Index.)

Special attention to the skin and its preservation is aimed at, and facilitated by means of a water treatment which must depend on the condition of the person under treatment. Ablutions, beginning with water at a temperature of about 86° to 84° F., must be continued, when increased vitality, at about 82° to 68° F., serve the purpose well. This is intended to open the pores, without depriving the skin of any warmth which is so necessary to the weak. This warmth, which an enfeebled condition impedes, should be increased; on the contrary, any extremes of cold or heat must be avoided, so that the existing vitality and strength may be maintained and improved upon. The one daily washing can be done either before or after rising; if the latter, the patient must return to bed until rested and warm. When the recovery is advanced and certain, colder water is used, and out-of-door exercise must be taken; washing may also be repeated before bed-time. (See "Ablutions," in the Index.)

In cases of shivering, cold extremities, etc., a vapour bath can be taken, unless the sun is powerful enough to



restore the heat. This bath should be of the simplest, to promote heat without perspiration, which would be fatal. The slightest sweating, drawing forth, as it would, not only toxins, but other substances needed for the return to strength, would rob the invalid of something necessary to his recovery, and prove injurious by impeding the slow return of strength. Vapour used for warming the body should take the form of partial or local baths, such as the "bed vapour bath," the "chair bath," the "foot," "arm," or "hand" vapour bath. (See Index.)

Vapour, whether applied totally or partially, should always be followed by a cold washing (86°—68° F.), according to the condition of the patient. When recovery is certain, a little perspiration can be induced. Whole vapour baths required in the treatment can be given twice or three times a week, alternated with local application vapour.

To maintain the activity of the digestive and other organs, the patient has a wet compress laid on at night 83·74° F. (See Index). It is removed the next morning. The part of the abdomen covered with the compress is then rubbed with the hand until the skin regains its normal warmth.

With returned strength, the trunk and three-quarter packing may be used with advantage, but only for a short time, and not with absolutely cold water; in fact it is an advantage to precede these by a slight application of vapour. (See "Packings.")

As time goes on, sitz baths are also given, for the purpose of strengthening the eliminating organs and increasing their activity, also to quicken and regulate the circulation. (See "Sitz Bath," etc.)

Upon this follow localised douches, when the medical adviser is certain that recovery has sufficiently advanced. They are the so-called Kneipp "knee," "leg," "back" douche, etc. Of course this can only take place when the patient's nervous condition has improved sufficiently to bear the shock of sudden application of cold water.

The programme goes on to walking barefooted in grass wet with the morning dew; and from that to certain exercises required to restore the slackened muscles, which exercises are specified, and increase in proportion to returning strength. (See "Gymnastics Treatment.")

Massage is resorted to in certain treatments with very satisfactory results.

And as the body is not the only part of man's organisation, the mental condition of the patient is an important consideration, and must be given proportionate attention. The patient's spirits must be kept up, and his thoughts distracted by reading, music, or any other pleasant occupation. Such things will work the change from sickness, through tedious convalescence, to restored health, and fit the sufferer to return to his friends and usual avocations.

Weakness is the inevitable result of excess of some sort, or over-excitement and irritating causes, brought about by deviation from the laws of health in eating, drinking, over-anxiety, over-doses of unsuitable drugs, etc. With such cases the reasons for the weakness must be removed, according to the age, condition and strength of the sufferer, and by the help of remedies most likely to influence the individual constitution.

A person who has lived and fared too well must obviously not be deprived of all luxuries at once; the man who drinks and smokes a great deal cannot abjure alcohol and tobacco too suddenly, nor can coffee and other stimulants be abolished in a day. The same remark applies to those who are suffering from overwork and exertion. Those whose health has been ruined in the tropics would suffer from a sudden return to a cold climate. All desirable changes must be worked gradually, or much worse symptoms may ensue.

With very few exceptions this graduated method should therefore be very carefully arranged, and treatment by depriving the patient of luxuries, drugs, etc., and in the formation of new habits, are to be suggested rather than enforced — nothing can be forced in things concerning the laws of nature.

### 31. The Disadvantages of the Drug Treatment.

"Hans! stick to the trade," said dying Butcher Stuss.  
Hans did, and soon became a Medicus." (Physician).

Professor Dr. Wunderlich, well-known in Medical Schools, once wrote in his text-book on the subject of internal diseases, that "Every shepherd and any old woman could show us the way of curing a disease, for we know of no remedy."

These words, of a scientific man, dictated by vexation as well as by persuasion, show the weakness, the faults, and helplessness of the drug treatments; the Professor thereby also practically declares that the poisons dealt out by the chemist as remedies are not remedies at all.

Medical bodies like to term themselves "physiological" in their treatment, thus leading the public to expect methods based upon the laws of nature; but when it comes to practice, they merely administer drugs, which must be "infallible." The reader may well ask how the doctor reconciles his prescription of drugs for the patient with the fact that the same so-called "remedies" are strong poisons? But the doctor does not know beforehand what the result of the poison remedies will be upon the system, therefore the public must be experimented upon, to test their value. The medicine, in various forms of concentration, must be personally tested, and watched in others, with due consideration for diet, etc.

When the experiment has been made with the "alien substance,"\* the results are necessarily quite different with every individual, in their nature, their intensity, and the time taken in manifesting their action. These results, judged according to the age, and general condition of the patient, and compared with due regard to their similarity and points of difference, form the means of determining the value of the said remedy.

At any rate this is the only reliable and practical manner of judging the curative properties of a particular drug. Having determined the nature of the medicine's working upon a healthy constitution, the doctor may, but not before, use them with advantage in the sick room. For it is then only he can expect, with any certainty, the modifications or changes he may be called upon to bring about in the course of his diagnosis and prescribing; then only, knowing the parts affected, as distinguished from healthy organs, can he apply his knowledge and be certain of the desired result. This testing of remedies on healthy people is the best teacher, since they produce the same symptoms

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\* This expression "alien substance" is used advisedly to describe medicine, because it does not belong to the human composition and is quite foreign to all internal substance. It is therefore inimical to the body, and from this reason can neither be assimilated nor profitable as a remedy.

which they would induce if used for sufferers of diseases by which such symptoms are caused.\*

Do organised medical bodies test their remedies in this way? Do scientists, who claim "physiological" methods as their own, prove the efficacy of the remedies they administer according to their natural and physiological working? It never enters their mind so to do. The remedies are tested on living animals, and by means of analysis or physical experiments.

Formerly it was pure chance that led the doctor to administer this or that remedy in cases for which they seemed fairly suitable because they had proved satisfactory in some more or less similar disease.\*\* Later on, when poisons had caused death, some knowledge of the substance used was sought and obtained by experimenting with it on animals. These experiments have enriched and improved medical science more than anything else. But although they had

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\* This is the only correct manner in which homœopathic remedies are determined.

\*\* Dr. Kühner, of Frankfort-on-Main, writes as follows in an article on "The Superstitions of Medicine and the Reform Movement in the Science of Healing": "In 1688 a woman was burnt as a witch in Ballenstedt, having been found guilty, by the University (Halle and Helmstedt), of administering belladonna and asa-fœtida to a girl suffering from hysterical attacks, the woman having no excuse for giving these medicines, except that she had heard they were good for cramps and spasms. Yet the same remedies are nowadays prescribed for the same sort of ills, although the authors of such prescriptions have no better reason for administering them than that urged by the "witch." What then are the fundamental principles of such a science? It is based on superstition and fallacy, just as witchcraft used to be. For instance: (The following is quoted from Oesterlen's Medical Handbook.) "A Scotchman named Tenant, living in Virginia, had noticed that Indians sometimes use the root (senega) with good results for the sting of a rattlesnake, when this produced disturbance of the respiratory system (which he took for inflammation of the lungs). He, and after him, the Italian, Sarcone, among others, tried the same remedy for lung and windpipe diseases, and since then — in spite of insufficient observation, incorrect diagnosis, and failures — senega counts as a splendid remedy in all respiratory diseases in which expectoration should be induced, in chronic catarrhs, mucous membrane complaints, asthma, and the last stages of inflammation of the lungs, — indeed, even in croup.

And as in medical matters one fallacy brings another in its train, the fact that senega was depended upon for catarrhs of the chest, suggested its use for other catarrhs, such as those which attack the abdominal organs, and since then has actually been administered for those complaints! Nowadays, for men who do not live according to the precepts of nature and cannot become "seasoned" to the effects of cold, etc., and are attacked with catarrhs, fools have an ever-ready and simple remedy containing senega!"



an important bearing on general physiology, they remained without real influence on the science of healing. Animals are incapable of imparting to us the sensations they experience as a result of taking "alien substances."

We can note their sufferings, locate the pain, determine temperature; this is, however, not of intrinsic value for subsequent treatment of diseases. Animal organism varies greatly, so that different poisons, or "alien" matter, acts in opposed ways on this or that animal, not only on the so-called warm-blooded, but on mammals which most resemble man.

The difference between men and animals is so great, that a conclusion drawn on the subject of the one would be useless for the other. Animals can take substances, even poisonous ones, which would be injurious to human beings, without any ill effect. Horses will thrive on a dose of arsenic, a fraction of which would be fatal to us. Again, the remark holds good in the opposite way. "Frank's Magazine" contains interesting proofs of this fact. The violet and pansy belong to one and the same species; the pansy plant contributes an allopathic remedy for breaking out on the skin of children. A child drank a small quantity of this boiled in milk; a full-grown cat lapped up about one tablespoonful of the same preparation, and died after several convulsive attacks. The prepared root of the violet in the same minim quantity produces frequent sickness and diarrhœa in grown-up persons, yet a dog could take six times that quantity without any visible disturbance.

This proves that the effect of physic on animals cannot help to judge of its results on human beings. This unreliability was finally accepted by medical men, and as many evil results followed upon the use of medicines prescribed according to this so-called "experience," it was found advisable to obtain further information in a science which has attained great importance, viz., chemistry. Therefore allopathists hoped to acquire the knowledge which experimenting had withheld, and they studied it with such keen intent, that although they did not achieve the desired effect, they still attained very different and most important results. Chemistry teaches, or aims at proving, that every living, growing, walking, creeping thing, every tangible object on the face of the earth, can be examined, divided, subdivided and analysed, such minute examination making it obvious that every atom goes towards the formation of one great whole. Medicine assim-

lated to its own science the principles of chemistry. The human body then became, for the doctor, a chemical retort, a container of things to be measured, controlled, and understood. Thus, if anæmia was produced by lack of iron in the system, the blood must be enriched or strengthened by doses of iron, as demonstrated by chemical evidence. The natural or physiological manner in which blood can be brought to its required condition without the help of iron was never enquired into.

A chemical substance, as, for instance, iron, can only prove a real remedy if it removes the cause of the disturbance, which may have one of several origins, without otherwise injuring the system; or it should strengthen the natural vitality to the degree required to restore the healthy condition of the blood. Allopathic science calls iron preparations, used in cases of anæmia, etc., "specifics," and the faith placed by doctors in the efficacy of this particular "specific" adds no small percentage to the apothecaries' income. Still, doctors in general are by no means agreed as to the suitability and corrective properties of this same iron.

In his work on "Physiological Chemistry" (Jena, 1893), Neumeister says: "It appears evident that the estimate of the power of iron preparations is based on lack of experience, because the observed cures are the result of improved dietary and hygienic circumstances, combined with the use of iron. This deeply-rooted and favourable opinion concerning its efficacy is not supported by undeniable proof."

Such are the results of the latest scientific examinations as regards the iron specific. Nevertheless, preparations containing the same are still prescribed, made up and sold, and are swallowed by the gullible and doctor-loving public. But with what results? The iron is not always assimilated, either by absorption into the blood or by the digestive organs. Professor Böhm, of Leipzig, holds that iron can only affect the blood by sub-cutaneous injections, which, on the other hand, may have very detrimental effects on the system. The fact of swallowing it by the ordinary means results in one or all of the following disorders, according to the strength of the preparation and the length of time it is used: digestive troubles pressure in the pit of the stomach, heartburn, loss of appetite, constipation, blackish excrements, decaying of the teeth, and a metallic odour in the breath. Böhm does not think that iron penetrates through the pores, even when iron is put in a bath.

We all know that iron is part of our system. It removes acidity and blood corpuscles, but its effects are quite different when taken internally to supply that which is lacking in our composition.

Anæmia, or poverty of blood, is almost always caused by the accumulation of toxic substances, which impairs the assimilativeness of the gastric juices and produces bad digestion. The removal of the cause of the disturbance by a suitable treatment alone improves the general health. To restore the blood to its normal condition many factors must be made to co-operate, and to bring about general health. Nourishment suited to the digestive powers of the individual, porous clothing, light, air, warmth, water, exercise, rest, etc., should all be brought to work on the patient, and to help the formation of perfect circulation. The assimilative powers having been set working, the blood will naturally imply the necessary quantity of iron. How should the doctor cure anæmia, by means of iron preparations, in an individual who, year in and year out, lives under unfavourable conditions in the matter of the desirable circumstances before mentioned, unless the causes of the poverty of blood are first removed? Since the removal of such is the primary condition of possible recovery. Does a man sicken through lack of iron in the blood? No, but through conditions opposed to nature, inducing disturbance of circulation, etc., in which the lack of iron is the least important factor. Certainly, dear readers, provide your system with iron, but not by drinking it, rather do so by being moderate in your mode of life. Food and liquids of which you partake contribute a certain quantity of iron to your system; the body, when in health, is principally characterised by a well-regulated digestive system, which assimilates and distributes the food substances and juices in the manner required by nature. These digestive organs will therefore also — not certainly by a chemical process, but according to the principles of physiology — distribute the iron needful to your blood in the most natural way. In short, without going into unnecessarily long details, many circumstances connected with the normal formation of blood are entirely physiological, and, in spite of all medicine and chemistry, will ever remain the same.

Now, just as iron preparations fail to cure anæmia, so prescriptions containing chalk, phosphorus, sulphur, etc., in condensed form, will remain powerless in restoring health.

This is the most flagrant error of medical men — this rough and material handling of the principles of life. The before-named substances, together with those previously enumerated, form the elements of living corporeal substance. They are amalgamated with ten or twelve other elements into water, fat, albumen, lime, potash, soda, phosphoric acid and carbonic acid. By means of suitably chosen nourishment, regulated drinking, the help of warmth, air and light, in fact, by living quite naturally, according to the physiological conditions most naturally favourable to life, we can maintain a regular assimilation, and build up the component substances to the required condition and quantity. This depends on ourselves, and is the further duty of our physiological motive power. Our task lies in maintaining the regular process of assimilation. Our vitality — the mover of our internal organs, the living agent in us — will do all the rest. The elements include oxygen, hydrogen, nitrogen and carbon. We continually supply our body with these, extracting them from our surroundings, from the air, water, and food, or they are produced in us by the process of assimilation. Putting aside the impracticability of incorporation, it is as needless for us to provide ourselves with the remedies in their purely chemical form (since we continually take them into the system either naturally or purposely), as it would be to forcibly introduce the remaining elements into our body to bring about recovery from illness.

I could not speak in the same way on every remedy without exceeding the limits of the space at my disposal, nor could I touch upon the harmful effects of even the most important — it would fill a large volume. Yet I must tell my reader something more, concerning remedies given by medical men, which not only fail to accomplish the results promised by the doctor, but work in strict contradiction to the assimilative process of the organisation, and are opposed to the natural conditions of life, and therefore poisonous, since they are incapable of amalgamation.

Although harmless extracts of plants are to be accepted as possible remedies, because of their assimilative character, this is far from being the case with strong and potent plants, with stupefying properties, the juice of which is extracted by chemical process, and given to patients to be taken internally. Their poisonous and irritating qualities work much harm to the constitution. Where the healing power of nature



is able to modify the effect of the poison, it is done through the digestive process; there then results no lasting evil, and nature disperses the disorder caused by the poison. But this is only possible when the harm is done by potent and disturbing poisons, extracted from plants, which, even in the face of the harm they do, still contain certain powers of assimilation which they owe to their original connection with the vegetable or natural world. Still, if the poison is taken for any length of time, the vitality is much impaired, and becomes less able to resist the constant action of the poison. This becomes assimilated with the natural juices and substances; it deposits itself in every organ, every cell, every nerve fibre, and a disease wrought by medical remedies sets in, with fatal results in many cases, as a consequence of this wholesale administration of toxins. I need only mention the results of poisoning by the "healing process," attempted on the part of doctors, by atropine, quinine, opium, morphia, senna, digitalis, etc., yet one would imagine that common-sense folk would refuse to tax their dear bodies with such poisons as are prescribed by allopathy.

But no, on the contrary, they are not satisfied unless the doctor prescribes, since they think that their ailment is not being thoroughly considered, or that a superficial examination has been made. Indeed, so-called cultivated people do not hesitate to boast before others of the quantity of morphia, quinine, or other drug, which they have taken without its disagreeing! God grant that even such "wise" folk may learn something from this book as to real and false methods, and about the action and meaning of pharmaceutical remedies.

Worst of all, however, than the poisons extracted from the vegetable world are those produced from minerals, which are even more antagonistic to the human organisation; they are favourites with medical men, and the hobby on which numbers of them ride.

Substances, in form of remedies, which are inorganic, indigestible, and therefore un-assimilative, act upon the body and its organs in a mechanical manner, after the way of dynamite. Although some of the "mineral poison remedies" do amalgamate in the body to a certain extent, this is not the case with most of them. The simplest minerals, such as iodine, mercury, arsenic, copper, lead, zinc, etc., being elements, are not assimilative. They do not change, but

simply, according to circumstances, work ruin in the system, and our system does not brook extraneous matter, whether poisonous or not, because it interferes with its functions. Then the natural healing powers begin to revolt in their effort to throw it off, and a struggle ensues between the organism and the intruder. If the vitality is still sufficiently strong, the latter is eliminated by the function of the bowels; if not, it conquers, and misery continues. It moreover establishes itself thoroughly, tyrannises over the body and its functions, and eventually causes most terrible, painful, protracted illnesses — these have been termed “drug diseases.”

Let us consider the remedies made from mineral poisons. First, there is the long-prescribed mercury, which the medical world consider the most potent for the cure of “syphilis.” Is it a remedy? Does it cure it? Not at all. Science does not even recognise it in connection with the disease, but with its use the symptoms of syphilis give way so obviously to mercury, the improvement is so striking, that the doctors say it must be considered as a specific. Whence, then, come the relapses suffered by syphilitic patients after a mercury treatment; whence the many lesser evils which follow upon that particular “cure,” such as cachexia, and various forms of juice and blood disorders, caries, etc.; the protracted incipient ill-health resulting in early death, and often in suicide? They manifest themselves because the statement is false, because the disease is not cured, only suppressed by temporary concealment of the symptoms; because, in the attempt to make Beelzebub drive out the Devil, the only object obtained is to keep them both fast.

Dr. L. Lewin wrote “The side effects of Medicines,” Berlin, 1893, and said: “The sublimate bandage has made many victims, and the sub-cutaneous injection of insoluble mercurial mixtures in the muscles often produces the same effect as the Ointment Cure of old-time doctors — paralysis of the soft parts, necrosis (bone disease), etc. Anyone attempting to deny the fact that mercury produces gangrene in the mouth, must do so in the face of obvious proof to the contrary, either through professional prejudice, or on other grounds.”

Is it possible that anyone should believe that a medicine which, according to the declaration of a competent authority, produces such poisonous effects, can be administered to and taken by a suffering being with impunity?

Here, again, is the opinion of a consulting surgeon, Dr. Josef Hermann, Chief Medical Officer of the Department for Syphilis, in the Wieden Hospital, Vienna. In his work entitled "There is no such thing as Constitutional Syphilis" he says: "The process of arguing from the apparent healing action of a drug to the determination of the nature and presence of a disease has always been the greatest mistake in medical diagnosis. It implies a recantation of free observation of the healing power inherent to the human organisation; it is the source of all medical superstition, the foundation of quackery."

More or less, all other mineral poisonous remedies are on a level with mercury — arsenic, nitrate of silver, iodine, salycilic and hydrochloric acids; carbolic, phosphoric and nitric acids; strychnine, antipyrine, antifibrine, caffeine, antitoxin, pilo-carpin, chloride and bromide of potash, chloral hydrate, etc. Who knows the name of all the poisons of the allopathic pharmacopœia? but, as a matter of fact, about 300 new remedies have lately cropped up. Their advent has brought no shadow of proof that they possess any healing influence, that any cause of disease has been removed by their action. On the contrary, it is a recognised fact that they have done untold harm to millions of people, and still continue to do so.

Besides vegetable and mineral "curative" poisons, the "animal curative" poisons have attained a position of great importance in modern times. We have entered upon a period of bacteriology. Medical science may, in a weak moment, have found that the poisonous extracts of plants and minerals seemed either to work a wrong purpose, or do more harm than good; the nature of the disease also remained unknown to them, and then the bacilli or fungi which were supposed to cause and favour the infectious, epidemic, endemic, and other illnesses, were discovered. And to remove the former, which had congregated in the body, the patients were inoculated with the lymph or serum used on animals and transferred to human beings. I have already mentioned the manipulation of the poisonous calf lymph on page 221; the other so-called humanised lymphs are obtained from other animals. Contagion, bacilli, bacteria, and whatever else the fungi may be called, are transferred from an infected animal to a sound one; this one is killed when the disease has broken



out, and the contagion is finally inoculated into the human being.\*

\* This inoculating is copied from the method of the genial Pasteur, a French scientist, who inoculates in hydrophobia cases. This great man, evidently spurred on by the laurels which fell to the share of Jenner, the village surgeon, and discoverer of calf lymph discovered the anti-hydrophobia lymph which has caused the death of so many people. He inoculates a monkey with rabies; this animal goes mad, is killed, and its marrow (the most infected part) is preserved for a few days. Meantime, it undergoes some changes; when the toxin has fallen to the degree of weakness required by the discoverer, it is used. Pasteur also discovered the "Anti-spleen disease" serum, to which hundreds of thousands of sheep and oxen were sacrificed. The well-known Koch cure, too, consisting of injections of tuberculin, disappointed the enthusiastic expectations of science, and their hypnotised adherents, in that it helped to hasten the death of thousands. The remedy is an extract containing 50% of glycerine, and human tubercular bacilli in a pure condition, i.e., unmixed with any other bacteria. Koch had experimented on guinea pigs, which after several injections of tuberculin, remained immune from and were also cured of complicated tuberculosis. He promptly concluded that the effect on human beings would be similar, and believed he had found a panacea for rightly-dreaded consumption. Those who placed confidence in high authorities provided Koch with plenty of "human material" for experiments, but practitioners had to give in. This farce of scientific therapeutics ended in a brilliant fiasco. The Koch cure for consumption was done with, in spite of its having been praised, in the Lower House, by the Prussian Minister of Science as a national glory; in spite of the fact that the discoverer received for his work the Cross of Honour of the Red Eagle.

Far better would it be to consider seriously the question of arresting the increase of population in order to stamp out consumption. Koch therefore is played out. Sic transit gloria mundi.

One might have expected that the example of the luckless Pasteur and Koch would have prevented a recurrence of the same thing. But now we greet, in the person of Professor Dr. Behring, the discoverer of antitoxin against diphtheria, who thinks he has found a cure for another torturing disease. What is this serum? Blood drawn from a vein forms red corpuscles and yellowish liquid, which is serum. In 1887, a scientist named Fodor first asserted that blood contained properties which would destroy bacteria. Behring, and another colleague, Buchner, then urged that these properties characterised the serum or yellow liquid as well as the corpuscles. Buchner alone, in 1889, discovered that the properties inimical to bacteria had their origin in the albumen contained in the serum. To this effect Behring and he continued their researches, which resulted in proving the blood of persons made "immune." The serum proved that, by inoculating one animal body from another, the inoculated body would become immune from the illness to which the former might be liable. The nature of the freed animals would thus be so altered, that any predisposition to certain diseases would be made nil. This would, however, only apply to artificial serum; the serum would act upon an animal made immune, whereas, one which was naturally immune would yield no useful serum. Therefore, in diphtheria, the blood of individuals who have been rendered non-infectious provides a serum or antitoxin against diphtheria. The strength of the serum taken from inoculated animals is in proportion to the lack of



predisposition in the animal; in fact, it depends on the degree of non-susceptibility as it originally existed, more than on that which is the result of artificial means. Serum therapeutics therefore not only ensures immunity, but must cure existing infectious disease; the quantity of serum needed to achieve the latter will be greater than that required to prevent infection, so that the more acute the disease the more antitoxin will be needed. This naturally involves the treatment of horses and other large animals, who can well bear the withdrawal of a considerable amount of blood, and which, considering the fact that the required serum is for the prevention of diphtheria, would otherwise have been highly susceptible to diphtheritic infection.

This is the process: The bacilli, or diphtheritic germ, discovered by Professor F. Löffler, in Greifswald, is injected into horses, sheep, etc. These animals are bled, the liquid undergoes the required treatment, which then becomes an antitoxin for human beings.

Having read my foregoing remarks, you, my reader, must know my opinion of such serum. You will avoid the use of the same for yourself and your family, knowing the evils which result from introducing poisons in large doses in your system.

Koch, the healer of man, has made his exit from the variety stage, and Behring took his place to perform the same farce à la Koch. Only one thing remains a certainty — the so-called remedy means the sacrifice of human beings, animals and money.

The reception given by the "great" Virchow to this serum is shown in the following cutting from the Leipzig Daily News:

"Berlin, November 28th, 1894. — To-day a crowded meeting of the Medical Society took place. Dr. Hanseman, Virchow's assistant, gave a striking lecture on diphtheria treated with anti-toxin. As a result of most conscientious experiments, and after a strict examination, he deduced the following facts:

"1. The bacillus discovered by Löffler is not solely to be accepted as a cause of diphtheria, as it has been found in healthy subjects, and in others suffering from inflammation of the eye.

"2. It is not proved to be absolutely satisfactory as a cure for diphtheria, as several cases have been noted in inoculated subjects.

"3. As the cure is not certain, it cannot stand as a specific — children have died after being inoculated with the antitoxin.

"4. The serum is not harmless, since skin disorders and inflammation of the joints and of the kidneys have been induced by the same."

So that scientists are again disagreed. Virchow was the first to discover and make public the failure of Koch. He it was who, through his assistant, proclaimed Behring's fiasco; he who says: "A rational cure has not yet been attained by our universities." And Professor Dr. Ferich, of Berlin, ominously declared that "The idea of this cure resembles the search of the alchemist for the Philosopher's Stone."

Professor Dr. Gustav Jäger, in Stuttgart, says: "You may understand chemistry, physics and mathematics; you may speak the language of Romans, Greeks, Jews, Turks and infidels, but you have not the key to the ways of nature."

Were this ignorance attributable only to those whose professions are those in which men are not brought into contact with nature, such as lawyers, theologians, etc., there would be no reason for comment, except the regret that they should be debarred from such health-giving subjects. But it is regrettably obvious that people whose studies bring them into immediate relation with the laws of nature, who have carried on natural science studies *ex-officio*, are the greatest

According to Counsellor von Nussbaum, the number of disease germs, in the shape of vegetable organisms, and which we assimilate either by breathing or by actual contagion, is very large. It is the bacteria which cause so many illnesses.\* In fact, learned men and lay-men are not agreed on this point. The so-called "Contagionists" assert that disease is the result of injection through miasma, or contagion; others, who are on the opposition side, hold that the bacteria, etc., are created by the fermentation process of the illness. This is not the time to discuss this point, as it will be mentioned in another part of my work, but the question as to whether the bacillus precedes the illness or vice-versa is a vexed one. We might as well rack our brains to decide whether the egg or the hen was first in the field! What we know is that fermentation cannot exist without matter, and in this bacilli are found. The former being dispersed, the latter disappear. The way to bring this about lies in cleansing the system. This cleansing can only be thoroughly worked by following the laws of nature, not through inoculating the irritating substance.

Bacilli exist without doubt, and science has discovered many varieties. We have the tuberculous, the typhus, cholera, smallpox, scarlet fever, diphtheria germs, etc.; contagious matter in wound fever, miliary fever, hospital fever, anthrax, influenza, etc., and, unless I am mistaken, science has discovered one in measles, syphilis and catarrh.\*\*

But what is the good of all these "epoch-making"

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sinner, and one wonders why it should be so? Simply because nature and natural science are not to be combined. Nature and natural science, like life and death, are closely linked. The inorganic part is certainly to be studied in the laboratory, but what is living can only be understood by watching nature. The laboratory only treats of body and corpse, life consists of body, soul and spirit.

\* Bacteria appear in infectious diseases in the shape of bacilli, microbes, thread-fungus and screw-fungus. (See "Bacteria.")

\*\* Professor von Mosengeil, in Bonn, believes in poisonous "salipyrin" as a specific against influenza, and in a medical pamphlet he praises it for its quieting and sedative properties, only, he adds, it must not be stopped too suddenly (!) It also works wonders for rheumatism. "I do not yet know the catarrh bacillus," continues the Professor; "it may exist in varied forms, but salipyrin proves an antidote." This forms a really splendid match to the remark made by a "people's candidate," "I am ignorant of the plans of the government, but I do not approve of them." The learned Professor does not know that particular bacillus, but he recommends a poison as a cure for the same, only fearing that patients may take too little of it. Any further criticism of such utterances would but weaken the logic of "Science."

"scientific" discoveries if they cannot keep pace with rational therapeutics; if science cannot cure a single disease; if suffering mankind is made to serve as things upon which to experiment with a remedy which, after a time, has to make room for another powerful specific, and when the final cry is that "bacilli prosper, but the patients die!"

At the present day remedies are introduced after a few experiments on animals, and a few observations on patients. Under the deceptive name of "Science" the value of them is supposed to be experimentally proved, and they are prescribed and used in the treatment of the sick, although, to say the least of it, their efficacy is doubtful. Such methods are to be condemned, both on humane and scientific grounds, and yet they are in daily use." (Dr. Schulz, of Greifswald, "The aim and object of Modern Therapeutics." Leipzig, 1890.)

We who do not belong to "the profession" have naturally no right to criticise scientific matters. It is our duty to submit humbly to being inoculated one day with cowpox, to-morrow, perhaps, with a "culture" of cholera, with tuberculine or Kochine serum of some kind, or some other physiological-chemical-scientific poison taken from an animal or a corpse. We must suffer ourselves and our friends to be shut up in hospitals and used as objects for experiments. We may have no confidence whatever in the mistaken theories of state medicine, yet medical assistance is forced upon us by law, and our dwellings as well as the public lavatories, hospitals, and railway carriages are disinfected with poisonous gases. We may not protest against the scientific treatment, although we know perfectly well that the poisons employed as remedies are assumed to have certain effects upon the human body because they are found to have them in the case of animals. We see how the leaders of the medical profession fail to agree regarding their respective discoveries, and convict one another of serious blunders, yet we must put up with all this, for the medical profession sees its status threatened, and abuses its privileges and influence to secure patients by force of law, and maintain its monopoly. Our medical schools are not centres of progress and enlightenment. In spite of all their scientific apparatus, their chemical, pharmaceutical, bacteriological, and physiological laboratories, their lecture halls and their discoveries, they tend to increase the superstition and stupidity of the masses, and exist solely to secure the supremacy of a caste condemned



as exercising an injurious influence by Petrarch, Ulrich von Hutten, and a great number of honourable and intelligent writers on medicine.

Professor Adolf Vogt used the following words in the course of an address given at an anti-vaccination congress at Cologne: "The scholastic tendency of medicine is to deny to mankind any power or inclination to self-preservation, while it claims to play the part of a priest towards an individual as opposed to the forces of nature; it exercises, moreover, an arbitrary power over life and health, and by keeping alive the fear of pestilences that have long ago disappeared, it maintains its hold upon the people."

"For centuries this privileged medical art has been tolerated by the multitude, and has consumed the vitality of civilised nations, causing endless sorrow and financial distress in many families, for, apart from the extortionate demands made by many specialists, whose capabilities are by no means as great as their fees, we often hear of families who have been reduced to poverty through paying doctors' and chemists' bills, when one or more of their members have suffered from long-standing complaints. Thousands have been robbed of their bodily and mental health by physicians who have prescribed the fashionable remedies, morphia, cocaine, antipyrine, etc. The hospitals and asylums are over-crowded, and are constantly being enlarged. Many people have become helpless cripples in consequence of unnecessary operations, or, after a tedious course of treatment, they have sought death as the only remedy for their incurable diseases."

In his "Handbook of Remedies," Dr. Oesterlen says: "We find in the use of remedies and in the science of therapeutics a vast amount of error and false conclusions, such as is to be found in no other branch of learning, for much of what is taught is the product of human imagination, and is unworthy to be called science, as it is not based upon experience."

In another place he says: "We call drugs remedies, and prescribe them to our patients, not because their beneficial action and positive advantage are matters of certainty, but because we believe that they are likely to have good results, though our experience is no absolute proof."

Dr. B. Meissner, of Chemnitz, uses language that is excessively bold, from the medical point of view, in an article entitled "Treatment of the Sick at their Homes, and



Sick Clubs." He protests against the usual methods, and the following sentences occur in the course of his work: "The art of healing exists solely for the benefit of the sick man, not to satisfy the vanity of the physician by giving him the most complicated and costly apparatus for use in every-day practice." "I am under the impression that the physician often employs this wealth of remedies in order to conceal the fact that he is powerless really to resist disease." "Many physicians cling to the use of drugs, and regard every case of disease as an opportunity for trying their effects. They are intent upon discovering some healing power in the drugs, whereas they ought to know that many drugs are quite unnecessary, and are even likely to produce bad results. If their use is followed by no improvement in the patient's condition, is it reasonable that the masses should respect our position?" "By our one-sided action we physicians create our own opponents." "The reform must begin with the universities, and a new system of instruction must be devised, more in harmony with the needs of the present day."

"The medical school must make it its aim to discover and employ the simplest remedies which are appropriate for the healing of disease, or for warding off its inroads; it must not insist upon finding means of cure in drugs, or in operations causing loss of blood and mutilations. People no longer desire to be treated exclusively with drugs and poisons, or to be subjected to surgical operations, now that it has been clearly proved that less injurious modes of treatment exist. It is certain that the water treatment ought to be taught in the medical schools, for its good results are undeniable, and, like everything else, it needs to be properly learnt."

"At the university a physician must accustom himself to think for himself, and to put aside preconceived ideas." "The universities are unrivalled in the art of giving instruction on ætiology, the diagnosis of disease, and the various methods of examination, but they are not free to teach the best system of therapeutics; they cling to old-fashioned ways, although practical experience has proved them obsolete. The proof of this is to be found in the various books on the subject, which contain many reminiscences of the therapeutic systems of the past, which are now quite out of date." "Would that the university medical schools consented to give up the theories that have come down from the

middle ages, and would cease to regard substances as having special virtues in the case of special diseases, so that one must be employed to combat one disease, and another to combat another." "We forget that in our practice we have to deal with human beings who can think, and desire to know what the physician is doing to them, and who wish to be restored to health by the simplest, most reasonable, and least dangerous ways. If we play tricks with our patients, and show ourselves ready at every possible opportunity to use the curette (a surgical instrument), the uterine syringe or the ecraseur; if we employ the stomach pump without urgent need; if we irrigate the throat with caustic, and apply stinging preparations to sensitive eyes, etc., when perhaps perfectly innocent preparations would serve to treat or to cure the disease; or, if we have no scruple in our desire to display our surgical skill, in increasing the size of wounds and amputating limbs which, under other treatment, might have been saved, can we be surprised if our patients finally refuse to have anything more to do with us?"

There is no need for me to add anything to Dr. Meissner's words. The criticism could hardly have been more severe if it had proceeded from the most bitter opponent of the medical profession.

If the matter were not so serious, we should be tempted to look at the following facts from a humorous point of view. Dr. Adamkiewicz, of Cracow, was called upon by other physicians to give some account of a remedy that he professed to have discovered for cancer, but the application of it had produced bad results. At a medical meeting he declared, with praiseworthy honesty, that he had discovered no cure for cancer, and no remedy existed for this disease when it had reached an advanced stage. There was, in fact, no single absolute remedy known to medicine; it was impossible to cure a cold in the head, far less a cancer.

The inability of the members of the medical profession to exercise any beneficial action upon internal diseases is acknowledged by Dr. Nothnagel, of Vienna. At the congress of naturalists and physicians, held at Halle during his lifetime, he gave an address on the limits of the power of healing, in which the following passages occur:

"Recovery is due to processes which we are powerless to touch. In spite of antiseptic treatment, we can no more

cure tumours and abscesses than did our predecessors, we can only influence inflammatory processes." "With all our knowledge we cannot restore one cell that is missing, we can only exert an influence on the organism by supplying it with certain substances. Alcohol, morphia and digitalis, remove symptoms but do not cure disease." "By the use of drugs we do not really cure disease, we only get rid of symptoms."

"The more widely people acknowledge that there are limits to our power of healing, the more pressing becomes the duty of warding off disease."

Professor Nothnagel admits the justice of the principles of the Natural Treatment. But if we venture to use similar language, we are told by the medical profession to mind our own business, and not to meddle with what does not concern us.

We cannot be grateful enough to the celebrated Professor Dr. von Nussbaum, for a saying which exactly hits the nail on the head. He states clearly: "In prescribing a drug to be taken internally, there are so many possibilities as to its results that there is often good reason to doubt whether the drug ever comes in contact with the diseased organ."

Even if a drug has no manifestly injurious effects, and we may assume that its action is beneficial, in prescribing drugs for internal use we treat the stomach like a general post office, which ought to transmit the letters to subordinate offices for distribution, but, as a matter of fact, can seldom get through its business owing to breaks-down in the organisation, and overwork.

Why are there still so many adherents of the mediæval drug superstition, not only among the masses but among the educated classes? Partly because man is incapable of responsible reflection, partly from lack of energy in resisting the desires which are against the laws of nature. Although we clearly understand that we can only keep well by leading a moderate and healthy life, human nature will have it otherwise. People will enjoy themselves, eat, drink and smoke, etc., without moderation; that is why they were put here — and the doctors are here to heal them.

And the "authorities" view this mode of living, and of enjoyment carried on by their patients, with complacency. It is their mission to cure. "You may drink, smoke, etc.," they say, "but not over-do it." If, however, you should



be ill in spite of this advised moderation, well — and if you suffer, it will be because of some predisposition characteristic to your system, or of some bacilli to which you have been exposed. From the latter, however, our science can free you by the curative discoveries we have made.”

Unfortunately, science winks at the use of opiates, etc., and the ignorant masses only see that the doctors must be right in prescribing remedies which merely deaden pain and sense without removing the causes of suffering. Among these are narcotics, morphia, chloral hydrate, etc., with their deadening properties, and anæsthetics, ether, cocaine, pental, (a new anæsthetic), chloroform, etc., which produce unconsciousness and insensibility.

The dangerous character of these remedies,\* together

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\* The following true sad stories prove that the administration of opiates, etc., sanctioned by “scientific” men, is frequently followed by loss of life:

“Two Deaths through Anæsthesia.

“In the new General Hospital in Hamburg two deaths occurred which must undoubtedly be traced to the use of pental. A strong labourer, aged twenty-seven, having been admitted with a crushed finger, pental was administered during the removal of the member. The anæsthetic was quietly taken, and when the mask was removed, after two minutes, the patient’s eyes were open and the pupils dilated; suddenly the bleeding lessened, and then ceased altogether. Artificial respiration, compression of the heart, tracheotomy, and administration of ozone, were all tried without effect.”

“The second case is that of a girl of eighteen, admitted for inflammation of the thigh bone. An injection of iodoform was to be administered, the whole, including the anæsthetic, occupying one minute. Some time after the removal of the mask (10 grains of pental), slight dyspnœa took place, then cyanosis. This, in spite of all attempts at relief, increased for two hours and a quarter, when the girl died. In both cases the autopsy revealed the fact that pental was the cause of death, as there were no other symptoms at all. Probably the pental acted fatally on the heart region with the one, and on the lungs with the other.”

“Great Danger through Anæsthesia.

“The ‘Law-Journal’ of Leipzig states the following mysterious occurrence: “A certain Fräulein M. was manager in a confectionery business. Having injured herself in moving some heavy article, she placed herself under the care of Professor Landerer, who successfully cured her by means of an operation. Previous to this the young woman had complained of headaches, which increased in the form of congestive pain, and was advised by Professor Landerer to consult Dr. von B. The patient repeatedly told her parents that Dr. von B.’s mere look had a peculiar effect upon her, and brought her relief — this made her continue under his care. For weeks she visited him once daily, then twice; on April 22nd, however, he was away from home. The next day was a Sunday, and Dr. von B. wrote Fräulein M. a note, suggesting that she should not cease the treatment, and invited her to call. This she did on the 24th, but as she neither returned to her home nor to her business, her parents went to the doctor’s house for information, and



with the troubles ensuing upon them, the return of pain, and the general shattered state of nerves produced by the use of the same, is provisionally left unmentioned. Time brings counsel! The "Science" has so many remedies, so many specifics for this or that complaint, for the disappearance of pain, that it would be foolish to inform the patient of any eventualities.

The fact that their acute sufferings have temporarily

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were told that their daughter was sleeping soundly and must not be disturbed. The next morning, however, they would not be put off, and found their child looking more like a corpse than anything else. Her lips were nearly black, her eyes sunken, and she presented a terrifying spectacle. Dr. von B. explained that there was nothing to fear, since she was merely under the influence of narcotics. At the same time the anxious parents applied to Professor Landerer, who, being temporarily engaged, sent his head nurse to make injections. The nurse was all the more surprised at the sight of the patient, that the latter was partly dressed, having even kept on her petticoat bodice. Dr. von B. told Prof. Landerer that he had injected morphia, but to the nurse he mentioned another opiate. This deathlike sleep lasted four days, and the patient had to be fed artificially. Prof. Landerer finally informed the divisional surgeon, Dr. Siegel, of the occurrence, and he commissioned Dr. Schütz to attend. The girl's body showed a number of blisters resulting from burns. She left Dr. Schütz, and was sent to Dr. Braune's private nursing home, where she is still in a serious condition. Not only is she troubled with the gathering of her wounds, but her mental depression is such, that she will eventually have to be placed under special treatment. Not till the following Sunday did this unfortunate girl recognise her mother. Dr. von B. opened a private nursing home at Ilmenau, and left for that place the last day the girl visited him. He has instructed a firm of Leipzig solicitors to place at the unhappy parents' disposal the funds needed at any time for the outlay to which they had been put by his 'wrong treatment'. This, however, does not seem to settle the matter satisfactorily. If Dr. von B. has made such a serious mistake that a life was placed in danger, he should be made to answer for it before a court of justice."

"One word more. Both the Hamburg cases are typical of the omniscience of our 'certificated' doctors — they absolutely control life and death. The 'Profession' explain such 'clinical' occurrences, by which patients lose their lives owing to lack of knowledge or foresight in administering drugs, as 'Accidental death.' The other case, which is outside the precincts of medicine, the magistrate calls 'Death through misadventure.'"

"The Leipzig case, which occurred in 1893, proves the danger of allopathic curative systems in a drastic manner. Dr. von B., a specialist for nervous diseases, wished to hypnotise the girl, and to make her more susceptible he administered morphia. As the dose was too strong, collapse supervened. The frightened doctor, intending to arrest this collapse, meant to use ether, but in his anxiety snatched up a strong acid, which produced the blisters."

"Such a 'treatment' on the part of a specialist for nervous diseases, in one of the largest university cities of Germany, is really enough to make even the followers of allopathy slightly doubtful as to the wisdom of medical 'authorities.'"

been checked at the expense of their general health, and by depriving the system of its natural powers, is only recognised by the easily-gulled patient when some chronic disease has set in. But then he is the prey of the "masters of life and death," and must be thankful if he has himself a sufficient knowledge of physiological laws to cure himself in the only natural and possible way.

It would seem that mere common sense ought to show that remedies which, for instance, burn holes in materials and discolour a silver spoon, must have a deleterious effect upon our body, and both irritate and inflame the delicate textures of the digestive organs. But a truce to this survey of poisonous remedies!

All the researches on the part of Science after remedies which would heal, according to the literal meaning of the word, had, as we have seen, remained fruitless. Gradually every much-praised discovery in the way of "specifics" disappeared very soon, and with much less advertising than had accompanied its introduction to the world. It became "obsolete," as scientific men would say, and was relegated, as a "tried" remedy, with other pharmaceutical relics. This is a melancholy proof of the uselessness, the weakness, the unscientific ways of "Science," all the more that the precedent owed its existence to those who pose as past masters in the art.\*

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\* Professor Ludwig Buchner says, in his work called, "Concerning Faith in the Authority of the Realms of Science:"

"Nothing is more detrimental to progress and scientific advance than this feature — over-confidence in authority, without any further motive for such confidence except that the persons concerned are considered learned in certain matters. For, as a number of educated people are unable, owing to their limited knowledge, to really decide any point at issue, they frequently give their decision all the same, merely taking it for granted that their position justifies them in drawing their own conclusions, especially when the point at issue might prove awkward or unpleasing to them. In this way great difficulties prevent the recognition of more recent truths, especially in matters where knowledge is gained at the expense of very considerable trouble."

"As, however, 'knowledge' and 'judgment' are two totally different things, and as a learned man may be a poor judge, and vice-versa, so it follows that so-called authoritative individuals are not always to be implicitly believed. Those therefore who wish to judge impartially do well to follow the dictates of their own experience. Then, again, scientific authorities are in many cases elderly men, who have carried their convictions with them for years, and naturally both disapprove of new notions, and are rarely well acquainted with them. They see things from their point of view, and judge accordingly. To this may also be added a certain professional jealousy at not

being the first agents in a new movement, all of which tends to increase a partiality which is absolutely inimical to scientific matters. Goethe said: 'Authorities of every kind prevent us from advancing.'

"Blind faith in authority is the reason which makes us incapable of progress, and keeps us abjectly dependent on those fraudulent scientists of whom we think so much."

"Another reason for the prompt disappearance of new remedies is the extraordinary ignorance of the faculty concerning the human system. They do not grasp the real nature of the disease, nor the effect of medicines on the body, and the method of judging of the same by their effect on animals is quite a fallacious one."

"As vivisection and inoculation proved unsatisfactory, as the war against bacteria remained without effect, so people turned to surgery and held it up as the only precise branch of science. Since the ominous words of Professor Bilothe, to the effect that 'Medical science must grow more surgical each day,' the faculty cuts, chops, burns or saws in many cases where nature heals without operation or detriment to the health.<sup>1</sup>

<sup>1</sup> It is a well-known fact that operations often take place with great danger to life quite independently of the possible fatal results of anæsthetics. But there are other dangers of which the general public know less, and their eyes may be opened by this extract from the "Confessions of a Celebrated Surgeon."

In the "New Vienna Daily" the following appears: "Councillor Albert recently lectured on foreign bodies, and freely discussed a list of surgical cases which had given rise to much wonder."

"How often have people swallowed plum and cherry stones, coins, buttons, pebbles, and false teeth, and the victim does not find that such things are palatable. (Laughter.) But there are many other extraneous things which may find their way into the human body, such as testing tubes, iodine tampons, aye, and even the pincers used for fastening bandages, even sponges and compresses have carelessly been sewn up in a wound. This is not confined to private practice, for it has happened in hospitals and nursing homes, and it is also the case in the first Nursing Home, viz., in that conducted by Hofrat Albert. (Great laughter.) Yes, gentlemen, and such things should not provoke laughter, and must be made public as a warning to others." He then related the following: "I had been operating on the abdomen, and was resting a while. As I smoked my cigarette, my assistant, now Professor Hochenegg, came in to tell me that an American doctor, who sat in the back row in the operating room, noticed that a compress had been left in the wound when the skin was sewn together. Imagine my feelings! What could we do? Reopen the wound? This required consideration. We returned to the lecture room, and I asked the assistant who handed the instruments, etc., whether a compress had really been overlooked. 'No,' said he. 'But that is not conclusive. Can you answer for it with your life?' This he could not do. 'Hochenegg,' I asked, 'is the compress in the abdomen or not?' 'I swear that it is not,' he answered impressively. 'So can I,' added I, and the patient was removed. Two days passed, normally, but, gentlemen, on the third day inflammation set in, and you can fancy our state of mind. We thought it caused by the compress and our carelessness, and on the fourth evening the woman was dying. Professor Hochenegg, who was going the round, decided — a life was at stake — to reopen the abdomen — but, gentlemen, the compress was not there! Only — supposing it had been — what then?"



Then, just as doctors ignorant of the real nature of disease are only able to suppress its symptoms, and that at the risk of evil results to the system, so surgical operations are performed without sufficient grasp of the vitality of the body, which is considered in the light of a machine on which isolated repairs can be made when required. We know now how fallacious is this view of things. Hand in hand, too, with the quite evitable operations there comes the antiseptic treatment for the prevention of mortification. This can only appear when some irritable substance penetrates into the wound. As antiseptics, such as the highly-poisonous sublimate of mercury, carbolic acid, prevent mortification outwardly, chemistry sanctioned their use internally — this without realising that the natural vitality of every human being alone is capable of eliminating all causes of mortification, bacteria, etc., and that the use of poisons in wounds hampers this natural healing power. At the Berlin Medical Congress, on January 21st, 1884, these words were spoken: "Professor Buchner considers the use of antiseptic remedies harmful, for they act more powerfully as poisons on the tissues than on the resisting fungi." Surely this is a clear proof of the varied opinions of doctors as to the advantages of antiseptic treatment. Yet one after another of these poisons were used profusely — carbolic acid (the well-known Lister bandage), salicylic acid, iodoform, permanganates, iodides, bromides, sublimate, resorcine, creosote, chloral, etc., one making room for the other until yet another took its place. To-day a wound is disinfected with one, to-morrow with a second."

Remember, however, that all this is acute poison when placed in an open wound, since it is assimilated and taken into the veins, so that blood poisoning must result. In confinements, for instance, the unfortunate method prevails of internal aseptic washing, yet the same result is obtained by using water which has been boiled and allowed to stand well covered for a while. It is cleansing, refreshing, and disinfects without harm ensuing. The boiling kills all possible microbes; and where it does not accomplish this the antiseptic is equally helpless.

What has medical science accomplished by means of its three stock remedies, carbolic, iodoform and sublimate? This question is put by the author of "Emperor Frederick's Illness." The answer is: Nothing, either for internal or surgical purposes. But this uselessness does not obviate serious



ills, and occasional deaths, for which the allopaths would fain blame homœopathists, or drag to justice those who heal by the laws of nature, and are called quacks or muddlers for their pains.

“If there can be any question of injurious muddling, it exists among medical men, and should be strictly punished, since they consider themselves the only really capable and scientific body; yet, under the mask of so-called knowledge, they constantly are guilty of carelessness and dangerous treatment.”

A method which lacks comprehension and ignores the cause of disease, and whose object is to suppress symptoms by means of specifics, can but be guided by their diagnosis, which determines objective and subjective symptoms. Diagnosis alone gives the doctor a clue to a possible remedy; but the diagnosis itself is, to say the least, peculiar, since few doctors are ever agreed on one and the same case. Unless there are very obvious symptoms, any doctor may “suppose” what he pleases. His prescriptions depend on his diagnosis; if this proves incorrect, it must follow that the remedy is not the right one. The man who, with cleverly-turned sentences and technical persuasion, can show his so-called “reasons” for a particular treatment, will impose upon his colleagues called in for consultation, even though their opinion may have been different from his own. Was not this fatally proved at the lamented Emperor Frederick’s bedside? The innumerable consultations of the medical men resulted in nothing else. The Emperor was treated in a highly scientific manner — cauterisation of growths in the noble patient’s throat; drastic orders on the part of authorities. But the diagnosis differed, and although improvement was marked in certain accessible parts, other inflammation set in lower down the larynx. For the diseased juices rush to the most sensitive parts, leaving their poisonous traces as they go. (See Account of the Illness, p. 320). The Emperor’s suffering was partly suppressed, as the acute symptoms temporarily disappeared; but the fact that no understanding was come to by the various doctors, and their respective difficulty in determining the nature of the disease, made it necessary to use several hap-hazard remedies, which, being ineffectual, changed the case into one of cancer. Then science again was enabled to diagnose, but did not possess a cure for cancer. Thus was the death of one of the most

patient and noblest of men brought about. The end of the tragedy is too well known. As in this case the ignorance and helplessness of medical men was made patent, so it is proved in thousands of others which are not made public. It is not without reason that a popular saying runs, "The more learned the men, the more crooked are their ways."

Then the public gives a form of encouragement to such unfortunate proceedings by insisting on knowing the name of their disease, because the doctors have accustomed them to this habit. That is quite a mistake, for putting a name to the disease does not dictate the treatment but only the recognition of the degree of the ill. To obtain a cure the body must be treated rather than the disease; medical science does the opposite, and that very imperfectly. Allopathic therapeutics prescribe one remedy for one disease, another for a different one; if this fails, or a change sets in, then another is given, and so on till the list is complete, and the patient becomes a veritable chemist's shop.

When Professor Gerhard opened a nursing establishment in Berlin, November 2nd, 1885, he stated in his lecture that "the results of medical treatment are in proportion to acquired knowledge; without diagnosis there are no reasonable therapeutics." And by these words he stamped the impotence and wretchedness of medical science. For, as above stated, diagnosis is treacherous, since every doctor thinks differently from his colleague.

In diagnosing science wastes time, as in the case of the Emperor Frederick. If in the end a diagnosis proves correct, then it is generally too late to apply the remedies to good effect.

On March 13th, 1887, examination proved the disease which troubled the Crown Prince to be polypus. This new growth would easily have been cured by the laws of nature, had measures been taken to reconstitute the juices and procure absorption of the polypus. As this was not done, by the time a correct system had been evolved the polypus had turned to cancer.

Diagnosis, therapeutics, pathology, and all other branches of medical science, are untrustworthy and inefficient; other principles are needed for the building up of a "Science." Modern medicine brings in its train chaos, fallacies, and mistakes galore.

Constant change of treatment and prescriptions, and ever-

lasting discussions among men of science, prove undoubtedly that it is so, and that medical science has had its day.

Then — nothing ever was known — nor ever will be known.

It is with good reason Professor Dr. Gustav Jäger writes:

“The language of nature can be learned neither in hot class rooms nor from the corpse in the dissecting room, nor from tortured animals in the laboratory, neither from the sufferers in the hospital — nature alone can teach us.”

The science which is based on the laws of nature is Natural Medical Science, the only medical knowledge of the future.

Variatio delectat! (Change is pleasing) says a Latin proverb. Now, dear reader, I will give you a few more examples, which will open your eyes to the worthlessness of medical therapeutics.

## On Heresies.

By Professor Dr. Ernst Schweninger, Berlin.

### 1. Prescription Swindle.

(Taken from the “Hamburg News,” November 8th, 1892.)

“The day of all-powerful prescriptions is over; only quite a few doctors believe in the efficacy of their red, green, or white medicines. That is note-worthy, but we still tell the public all sorts of tales over which we laugh afterwards. We still pretend that what our predecessors did was well done, although we know the contrary. Mild deceit has taken the place of error.

“This begins at the university; here, where the makers of science congregate, the results of chemistry are discovered. When the professor has detailed the disease to the student, the last farce consists in introducing him to therapeutics. The ‘one who knows’ alone sees the ludicrous side which lies in the presentation of a medical ‘fairy-tale.’

“The results are good. A university man knows nothing of the art of healing. If he is a responsible and independent man, he will have his own idea of a method. There are exceptions, but, as a rule, he sticks at the point reached at the examination, the standard of which is low! The seeds of falsehood sown during the university career grow apace in real practice; it is a matter of habit. Prescriptions must be written. It is useless to complain, besides which they

are convenient. Just look up the illness, and there stands such and such a remedy. If your memory is good the reminder is useless.

"These points are harmless enough, others are not quite so 'clean.' Patients stay away unless they can depend on the 'drops.' The income is at a standstill, and love of money urges the unbeliever to prescribe.

"Still, patients are lacking. They want to be deceived, and imagine that health cannot come without remedies. We (doctors) have preached so long, that they now believe. We daily praise spurious power, and there are doctors who can read about the advent of new remedies without laughing!

"A client does not give the lawyer the clue to the advice for which he pays, the parish does not appoint the sermon for the priest's benefit, nor does the child teach the master. But we allow every old woman to dictate our treatment; we are at the mercy of the public; every maniac who visits us states the manner in which he intends to be treated. Nature is patient, and heals without science.

"A doctor who had prescribed against his convictions gave a strange reason for so doing, viz., that prescribing acted as a suggestive and physical treatment. The patient found comfort in having drops to take, which comfort gave strength to recover. Only truth is less potent than a mild lie; this carries further. And then, to cap the whole thing, comes the acmé of stupidity: 'Ut aliquid fiat! (So that something occurs.)'

"If an anxious mother calls in the doctor for a bump on the child's head, the sick glutton shows his tongue, and the old maid complains of cold; then the above sentence occurs to the mind of the doctor, and he dips his pen to write it down, knowing well that the above ills will pass off naturally — only no one must be any the wiser.

"In cases of typhus and inflammation of the lungs there is, again, no remedy, but the Latin is put down with a more professional expression. When the danger is past, however, it is thanks to the medicine; but should death be the result, the doctor will have done his duty.

"Then the innumerable chronic diseases! These are often curable, but not without careful thought. It is much easier

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\* This is often written at the bottom of recipes. It implies that science has no remedy for the particular ill, and that the medicine ordered in the prescription was only for the comfort of the patient! (The Author.)



to prescribe with the 'Ut aliquid fiat' proviso. Now and then it varies. The patient sees something does happen, and is content — until he finds out the trick. Then he goes to another doctor to go through the same experience, and so on, until he throws up the game and consults a quack.

"The motto, however, helps even the incurable. They watch the bold stroke of the pen which concludes the prescription; devoutly take in the physician's wise words; confidently swallow the bitter stuff, little dreaming that their hero merely shrugs his shoulders, and, satisfied with his virtuous deed, mutters, 'Ut aliquid fiat.'

"They hope and wait until death steps up to their bedside and breaks the bottle. Their lips still murmur their praise for the doctor; we accept it as a reward for our — trouble. The scorn of death does not affect us — we do our best, and the best is 'Ut aliquid fiat.'

## 2. The Wisdom of the Layman.

"Goethe wrote about a word and its meanings; it is long since, but a good deal has been accomplished. We may not have grasped many ideas, but we have collected a large number of words, and he who can use them briskly and to good effect is reckoned a cultivated man.

"This word culture is not to be despised; it is easy to acquire, and makes social intercourse bearable. Only this word-making has taken hold of practical matters, and in the intercourse between the doctor and the layman it is the word without meaning which rules the day. Instead of receiving a sensible answer to a simple question, you receive a stereotyped phrase familiar to doctor and patient alike.

"The very outset of the consultation hour implies nonsense and to spare. 'What ails you?' 'Rheumatism.' Now there is not a man living who can explain this word, and yet both high and low suffer from the obsolete name coined by the doctor's dilemma. Nobody talks of pains in the legs, rheumatism spells the same thing, indeed it covers a vast deal more. Where the head, the arms, the chest, the abdomen is concerned, the same word comes in; one has rheumatic toothache, another rheumatism of the heart and chest. The woman who owes the pains in her back to the unwashed hands of her midwife, the scrofulous child, the agony of spinal disease, all are due to rheumatism. The labourer shows

his arm racked with inflammation of the tissues, with the inane remark, 'it must be rheumatism.'

"And the worst of it all is, this nonsense is not only the invention of medical men, but is further encouraged by them. There is no handbook which does not contain a chapter on this fancy disease. In fact, one of our most respected authors closes his remarks on the subject by saying, that doctors group the most different forms of pain under the heading 'Muscular Rheumatism,' and the patient is agreed. That is satisfactory. If the outsider were not as illogical and lazy as the medical man, the renown of the latter would stand a poor chance!

"But the heyday of rheumatic disorders is over; now nothing is so important or correct as neuralgia and neuralgic gout. It sounds better, and has the advantage of being less idiotic. We can consider this — neuralgia equals nerve pain. There can be no pain which does not touch upon the nervous system, so when our patients who complain of pains in the head are informed by us that they have neuralgia of the trigemenis, we mean exactly the same thing as the professional man, but less plainly.

"But the public mind is too narrow to note this; it looks for the 'M.D.,' and thinks itself wise. How we despise people who confuse the meaning of words; those who cannot maintain their dignity by bravado are not on a par with us. Any learned man may speak of gout in the head without detriment.

"When a man has overburdened his stomach, or a woman has laced so tightly as to reduce her internal organs to a pulp, 'stomach-cramp,' that costly weapon of hysterical women, supervenes. Thousands of people complain of acidity, and no one knows what it is. One gives this name to a bad taste in the mouth, another mistakes flatulence or heart-burn for acidity, and so all use the word without thought.

"The doctors, to whom fools come with such empty phrases, keep up the game. They advise diet as the great remedy for stomach troubles; they warn the patient against acid and rich food, and recommend articles easily digested. That is something done.

"It is pardonable that folks should not know what is digestible; no one does, nor will it ever be explained. But the doctor is expected to know what should be eaten or drunk, the time at which the meal should take place, and how the

changes must be rung with exercise, rest, sleep, etc. But time is money. The magic phrase 'diet yourself' contains everything wherewith to satisfy consulting patients, more indeed than minuter details will do. Therein lies all the difference.

"It is a feature of medical practice, leaving to the non-professional the task of laying down his own rule of life.

"Many are saved by providential carelessness from trying the diet; they are content with nasty medicine. But others think further. Alas for the man who comes across them — they are terrible, and collect dietetic rules from every penny-a-liner.

"They don't eat cabbage because it is indigestible; coffee excites them, red wine produces constipation; acid things impoverish the blood; light colours weaken their sight; linen garments scare them; woollen articles are good, and the longer they are worn the worse they smell. Some eat no meats. Such people should be avoided, for they have not the sense of a cat. They take exercise by clockwork — movement obviates hemorrhoids! They swear by open air; doors and windows are useless except to be open; they go out barefooted; in one hand they carry a pail of water, in the other the scrubbing-brush — this is to harden themselves. So much for these thinkers. They are terrible!

"Woman is remarkable in the way of word culture, and she discusses every medical method. Children's diseases have their origin in teething and worms; later on, overwork in school is responsible for every ill; headaches and poverty of blood are counteracted by means of iron. The mother-in-law prescribes broth after confinements; if things go wrong the milk is to blame, and in such cases one woman knows better than ten doctors! For has she not gone through it all? Women never lace, they wear corsets merely as supports, and to prevent stoutness. All the same she suffers from 'nerves' and 'migraine' (sick headache) as an excuse for her bad temper.

"I cannot dwell longer on such follies, but I must say a word on a subject which constitutes a source of pleasure, viz., chills. This is a safety-valve for patients and doctors. Everything goes well if a chill is determined, and that always happens. One person takes a chill from overclothing, another from lack of the same; a woman contracts the chill from bathing during menstruation; the man is affected with catarrh of the stomach through drinking cold beer.

"In spite of preventives, such as cold frictions, woollen garments, barefooted exercise and felt soles, the chill comes all the same, and with it innumerable other ills, for nothing is traceable to anything but a chill — not even umbilical rupture!

"If death ensues upon pet follies, he is dubbed a liar. But drunkards are always right, their hoarseness proceeds from cold feet, and others believe him, even though his nose glows as a token that his throat is inflamed with drink. Yet it is the doctors who seek for the excuse of the chill — and who find it.

"Sacred science stands supreme, though practitioners hold the dumb woman in respect. She tries to revive the principles instilled by her mother; the public goes on trusting; the only difference lies in the question as to whether they are killed off scientifically or by quacks."

### The Mysterious or Fatal Diagnosis.

(From the new "Medical Science," II. year.)

"There are many opponents to medical science in the civilized world; nowhere is it made so public as in the newspapers of the United States of North America, where doctors have made unceasing war against 'Natural Law Treatment,' and that without great effect. Americans are practical folk, from whom there is much to learn. For instance, the editor of the 'New York World' (one of the most important papers in the States) employed a woman to visit seven separate medical authorities, and to report on their advice, she being supposed to be in general ill-health.

"This was the result:

"One said, after close examination, that she was suffering from 'shattered nerves;' the second suggested 'malaria;' the third 'neuralgia;' the fourth 'dyspepsia;' the fifth 'anæmia;' the sixth 'serious eye-troubles,' and the seventh 'stomach disorder.' The six first prescribed, assuring her of prompt relief.

"The 'World' detailed this in such a manner as to disconcert the medical men, who were so proud of their diplomas, but they all had to acknowledge that they had done as the 'World' said.

"Another reporter thereupon visited the same physicians, and elicited the following remarks:



"1. 'Yes,' looking through his diary, 'I did prescribe as stated, but have nothing further to add for publication in your paper.'

"2. He felt embarrassed, and had diagnosed 'Malaria' prescribing five meals per diem as a remedy. It was 'scandalous' that the fact should have been made public. 'I have nothing further to say.'

"3. 'Although I decline to give you any opinion, all Miss Blys has said is true. I acted towards the lady to the best of my knowledge.'

"4. He looked up diary and prescription, saying: 'The diagnosis and prescription are correct, but I refuse to be questioned.'

"5, 6 & 7 were experienced lady doctors. The first absolutely refused all communication. No. 6 asserted that the diagnosis was correct, and that the remedy would be useful. No. 7 thought it prudent not to see the reporter, and pleaded illness as an excuse.

"The lady reporter in possession of six prescriptions from the most celebrated physicians cannot believe that she is afflicted with any of the above ills; least of all has she any faith in those who, for malaria, prescribed five meals a day, and for digestive troubles ordered three large pieces of toast.

"'This,' says the 'World,' 'proves the knowledge of our scientific men, who make a monopoly of their profession, and are entitled, by the authorities of the United States, to govern matters of life and death concerning their fellow-citizens.'

"We can only add that, in our European realm blessed with certificated medicos, it is rare that two out of seven agree; we have no freedom like our transatlantic Republic, still the Natural Law doctors discover the false diagnosis and astounding prescriptions from which patients have suffered, and that for years together. It is only fair to add that one cannot help wondering at the stupidity of patients who take all for granted from certificated men, thinking that one who is not versed in Latin or Greek knows nothing. Still, the public is beginning to see more clearly, and forthcoming illnesses will do the rest in helping to break down all ignorant prejudices."

Dr. G. von L.

Two more cases will conclusively prove the impotence and incapacity of medical science. The reader must glean

from such real examples that science carries with it dangers caused by medical treatment. I have purposely chosen examples relating to diseases of the eye, which is the best, the most delicate, and sensitive organ; yet medical science has repeatedly wrought grievous harm by false, one-sided, or local treatment, ophthalmia having been followed by severer cases, and frequently resulted in blindness.

### **Scrofulous Inflammation of the Eye. Bronchial Catarrh.**

(From the "New Curative Method." III. Year, No. 8.)

"The seven-year-old son of the railway secretary M. was brought to me, with the remark that he was suffering from his eyes and chest. Both had been treated medicinally without result. Allopathists had prescribed an ointment for the eyes, which naturally proved ineffectual.

"I found scrofula the cause of suffering. The swollen glands of the neck, the general catarrh in the breathing organs, intense sensitiveness to light with inflammation of the eyes, all pointed to habitus scrofulosis.

"I ordered friction sitz baths, vapour baths and trunk baths, entire vegetable diet, all of which acted upon the toxic substances, and after six weeks recovery set in. The breathing improved with a return of the appetite and regular action of the bowels. The child, to the horror of his parents, who thought him worse, brought up a quantity of thick phlegm, mixed with lumps of matter, and as soon as this preliminary elimination of toxin had taken place the sensitive eyes grew more accustomed to the light, recovery becoming an accomplished fact.

"The swelling of neck and armpit glands disappeared, and are not to be felt now, so that the complete recovery is secure.

"Kassel, February, 1891.

"M. PLATEN."

### **Inflammation of the Cornea. Increased through Allopathic Treatment.**

"Henry Rasch, in Ochshausen, near Kassel, had a girl of eight, who suffered from the above in the left eye. Her father brought her to me on October 6th of last year. The latter stated that the child had suffered from inflammation of

the left eye since the early spring of 1890. No particular notice was taken of it at first, but eventually a medical man was called in, and the child was sent for some weeks to a hospital in Kassel, known as 'The Child of Brabant.' There the eye was syringed with liquids and dusted with powders, but the disease had increased so much, that at times all power of sight seemed to be lost.

"The man's belief in the power of the doctors to heal disease had received a severe shock, and he was ready enough to try some other method.

"I removed the bandages from the eye, and found the cornea, which should be white, much inflamed, and the blood vessels very full. The inflammation consists of very small swellings of a greyish white colour, and these had affected the eyelid, and the little patient was obliged to keep the eye constantly shut, and to avoid all light. The eye watered very much, and caused much pain.

"Further diagnosis, based on the facial expression, led me to believe that the inflammation was of a secondary nature, and was probably the result of a diphtheritic attack, or of suppressed whooping cough. The foreign matter worked its way upwards from the child's body, keeping in front on the right-hand side, and at the back on the left, so that two cross-currents met at the neck. Here they were plainly visible. Then they flowed to the left, partly behind the ear to the back of the head, and had apparently sought an exit at the left eye. We had therefore a generally diseased condition, but hitherto only local remedies had been applied, and they had no success.

"The natural process required me to begin by removing the cause of the disease. Here, as in all other cases, it was necessary to rouse the organism of the body into activity, so that it should co-operate in its own restoration to health, and expel the diseased matter through the natural channels, viz., the bowels, the kidneys, and the skin. I ordered compresses of water at a temperature of 66° F., to be laid on the eye to alleviate the pain. These were covered with a piece of flannel, and kept in place by a flannel bandage. As soon as the compresses grew hot, they were renewed, as to have left them on would have aggravated the inflammation. As soon as the pain ceased they were left off, and the eye was accustomed gradually to light and air. I ordered three sitz baths with friction daily, each lasting half-an-hour, to be

followed by running about in the fresh air until the heat of the body was restored, and perspiration produced. These means, in conjunction with a carefully-regulated diet, resulted in a complete recovery. On Nov. 13th, 1890, I was visited in my consulting room by Frau Anna Gröling, of Ochshausen, who desired to consult me about some internal complaint from which she was suffering, and brought me a message from Herrn Rasch, the father of my little patient, to the effect that the left eye had been completely cured. At the beginning of March in this year I saw the child herself, and both her eyes were alike, clear and healthy. The cure had been a permanent one, and our new method of treatment had scored another success.

"Kassel, April, 1891.

"(Signed) M. PLATEN."

## 32. Natural and Medical Treatment.

"The physician treats diseases, nature cures them."

"The physician is the servant of nature, not her master."

Hippocrates.

We are told by no less an authority than Dr. Rudolf Virchow, of Berlin, that the ideal task assigned to medicine is to control the practical and social life of mankind, so as to remove all impediments to the normal discharge of the vital processes, and to work for this end for the welfare of all. The modes of treatment followed by recognised practitioners are, as we have seen, far from being adapted to the welfare of all. If they were popularised they would only increase the baneful effect upon the health of mankind, for the power to injure is now limited to a few. If we could believe that the wish expressed by Dr. Virchow would ever be realised, we should be extremely grateful, but he himself describes the task assigned to medicine as "ideal," i.e., as unattainable, so we may be assured that there is no danger of this disastrous science becoming popular.

It aims, it is true, at doing so, by supplying papers and magazines with instructive articles, and writing so-called "popular" works on health, disease, etc., yet it has not succeeded in making the people adopt its views. In theory the instruction given may have much to recommend it, but in practice it proves inadequate, inasmuch as in almost every case of illness the advice of a physician is regarded as



indispensable. The popular writer soon comes to an end of his technical language, and then proceeds to lay stress upon the difficulties encountered in the study of medicine, so that the true treatment of disease is, and must remain, a sealed book, inaccessible to ordinary mortals.

About seventy years ago Priessnitz brought his system of water treatment into prominence, but medical men discredited it by applying it wrongly. Being ignorant of the nature of a disease, they used water at too low a temperature and in a mistaken way, for they considered that they must apply it as they applied their drugs, to remove the symptoms rather than the disease itself, and thus much harm was done. Serious nervous disorders were the result of the "scientific cold water tortures," and many people died.\*

There was some reason for a saying that used to be current — "the cold water treatment supplies the lunatic asylums with inmates."

The unfavourable results of the water-treatment, as applied by medical men, became widely known. No one, however, could deny that the founders of this mode of treatment, Priessnitz and Schroth, and their successors, Rausse, Hahn, Wollbold, and others, had been very successful, although they were not entitled to practise, and were regarded as quacks by the profession.

People began to act for themselves and to think. They were not inclined any longer to act as objects for experiments, nor to allow themselves to be poisoned and mutilated. Men and women came forward from every rank and calling, who had for the most part suffered themselves and been cured by some natural process, after having undergone scientific treatment with no good results. They became the unprofessional advisers of people suffering from sickness and various forms of misery, and their intelligent and successful application of the water treatment, adapted to the requirements of each individual case, and combined with the other factors of the natural method, began to make it widely known. Their

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\* As the medical profession began to treat all feverish diseases by attempting to lower the temperature, it was common to put a fever patient into an ice-cold bath, after the ordinary doses of quinine had proved ineffectual. Many died in consequence, some actually during the bath, and this mistake on the part of medical men was put down to the water treatment.

success was wonderful, and they often restored to health patients who had been given up by the faculty; and these successes led others to adopt their methods, so that at the present day these unprofessional advisers are very numerous, and associations for the natural methods of sustaining and restoring health exist in every part of Germany and in many places abroad.

Lectures are given to instruct the people in the system, and the number of adherents to the movement in favour of reform is increasing daily. Qualified physicians have had to give up their position, and have joined the movement and become followers of the natural system, so that the unqualified medical men can now enjoy the satisfaction of having attained their object, and it is no disgrace to be called a follower of the natural system. We often are called quacks and dabblers by our opponents, who still are in the majority, but this need cause us no annoyance, for we are in good company. Kneipp and Kühne are also unqualified, and so our opponents would call them also quacks. Yet these quacks are consulted, not only by princes and the great and powerful of this world, but also by qualified physicians who come as learners. There must therefore be something in their "unscientific quackery." From the professional point of view this may be a cause for regret, but the eyes of the masses are being opened. They desire to be healed, and dislike scientific experiments on their living bodies, and inoculations for cancer; they object to being experimented upon with chemicals, with poisons from dead bodies and from diseased animals; they have no taste for operations which are highly scientific and most interesting and successful, from which the patient either dies in consequence, or lives on as a useless cripple. In fact, the popular feeling against all these scientific methods is gaining strength daily, and increasing favour is shown to other modes of treatment, which are very often successful in restoring the patient to perfect health by an inexpensive, safe and painless process that is comparatively rapid, and requires no chemicals, poisons, or mutilating operations. This process, moreover, is not apt to be followed by the appearance of a new disease, differing perhaps only in form from the former. People want to regain health, and prefer recovery by "quack" treatment to continued illness under the care of professional physicians. In fact, some people are so devoid of conscience in this respect, that it is a matter of indifference to them that they ought

to be dead, for they have been given up by the profession as incurable, and have regained perfect health under the treatment of a so-called quack. Among the followers of the natural system there are some who disregard conventionalities, precedents and good manners so far as to venture to speak the truth, in spite of calumnies and ridicule and more serious penalties. These do not hesitate to use treasonable language, and to unmask the tricks of the profession, describing them as a species of jugglery, intended to deceive both scientific men themselves and a credulous public, so that people who otherwise are clear-sighted and reasonable, are, as it were, hypnotised, and forced to accept false conclusions, as if they were clearly established logical results.

There are many independent modes of treatment, which are either quite unknown to the profession or known only by name, and have therefore no right to exist. Such are the natural system, homœopathy, baunscheidtism, magnetism, Dr. Jäger's system, etc. But although numbers of the medical profession have no knowledge of the above-mentioned systems, and refuse to learn anything about them, they are nevertheless in the habit of criticising them, and of stating their opinions as final. It is inconvenient for them that these systems are successful. They prefer to say nothing about them, and to follow the old scientific lines.

The noted hygienist Lothar Volkmar, who was formerly in the service of the Prussian government, and is now a prominent advocate of the natural method, remarks:

"The medical schools know nothing of the natural method, of the physical-dietetic method, and of homœopathy, and they refuse to learn anything about them. They are of course followed by the ordinary medical practitioners; and the worthy householder, even though he be a member of parliament, obeys his doctor, until the knife is held to his throat; then, and not sooner, perhaps not even then, he reflects that it is scarcely suitable, perhaps it is very ignorant, to live unscientifically and to be healthy, but it is certainly pleasanter to be unscientific than to suffer martyrdom in the cause of science. And if ever it happens that any member of the educated or governing classes offends so seriously against etiquette as to allow himself or a member of his family to recover health by unscientific quackery, the danger is no sooner over than etiquette reasserts itself, and forbids any mention to be made of such a lamentable occurrence."

But we ought to have some definite idea of what we mean by a quack. He is one who understands nothing about his work. There are quacks in every trade and profession, but a medical quack is one who muddles over a patient. A fully-qualified physician, or even one of the shining lights of the profession, may do this as well as one who is unqualified; therefore, among both classes, there are quacks or dabblers who do not understand their business, which is to heal disease. It savours of petty revenge to class all unqualified practitioners together as quacks in the way in which the medical profession does, in its vexation at their success in the treatment of disease, and it is an excellent proof of the inability of the qualified man to cure it. There is a proverb to the effect that one who makes much noise must be in the wrong. The profession raises a loud outcry because the unqualified man can point to the successful results of the simplest natural treatment, and to the restoration of patients whom regular practitioners had given up.

As advocates of the natural system, we maintain that the qualified men are quacks and bunglers, because they do not understand the art of healing, but repress the symptoms of disease by the introduction of poisons at the expense of vital power, thus producing chronic ailments. Moreover, by operations of various kinds they remove or destroy diseased parts of the human body, which might have been preserved by the natural system. We claim, rightly, to be called "Nature's physicians," because we leave the task of effecting a cure to nature, and content ourselves with doing our best to assist her by employing simple, natural remedies, carefully proportioned to the individual capacity of each patient. We regard ourselves as the servants of nature, not as her masters. When we are sent for to attend a patient, we find out all we can about the symptoms of his disease, and his general condition, and then we prescribe a form of treatment that aims at removing the primary cause of the disorder, and at alleviating its accompanying discomforts. We begin to put out the fire at once, and do not wait until the whole house is in flames. The medical practitioner, on the contrary, will often say that he must wait until the symptoms allow him to make a complete diagnosis and to identify the disease. He says that he must see what complaint is being developed, and then he will be able to



apply scientific remedies for its cure(?) He watches the case, and so wastes valuable time. From the symptoms that present themselves he can form no correct idea of the state of the patient, and he waits until the house is on fire from top to bottom. Then he knows the disease, and can give it its proper name, which is absolutely necessary before he can prescribe the proper remedies. These are now prescribed, but they do no good, but increase the patient's discomfort, as more combustible matter is thrown into the burning house. Finally it ceases to burn, and falls in.

Nature's physician treats the patient, not his disease. He cares nothing for the long scientific name of the complaint, as it does not affect his treatment, which is carefully adapted to the patient's strength and state. Learning that results in nothing is worthless beside a sick bed, for healing is a living art and not a dead science. Nature's physician gives the patient and his attendants very exact instructions as to food and treatment, but he also lays hand to the work himself, assists in bathing, washing, rubbing, etc., in short, in doing all that is required, and sometimes his visit lasts for hours. The medical practitioner does not take long to feel the pulse and look at the tongue, nor is it a lengthy business to write out a prescription. A few instructions with regard to food and nursing are given, and he has done his work. If the patient recovers in spite of the medicine, the doctor gets the credit. If he dies, the doctor cannot be blamed, thanks to his diplomas; but the uncertificated nature physician is in a very different position, and he meets with opposition in every direction; he must prepare for unpleasantness if a patient leaves him in the lurch and has recourse to a qualified practitioner, or if anyone dies under his treatment. Two paragraphs of the criminal code entitled, "Bodily injury" and "Culpable negligence causing death," are like a sword of Damocles suspended over his head. In practising at all he renders himself liable to imprisonment, and the members of the medical profession are quite aware of this fact, and have no scruple in denouncing him, although they do not always succeed in having him punished, for the judges are impartial in their decisions. There is certainly some risk involved in being a nature physician. He is allowed to try to heal disease, but the law requires him to treat his patients in the same way as an advanced modern representative of a medical school would do, and if

he fails to act thus, the Profession has no great difficulty in getting up a case against him. If the patient loses flesh, it is ascribed to his having ordered a vegetable diet or a lowering course of baths; any critical symptom is regarded as an aggravation of the disease, and so on. In fact, so many arguments can be brought forward against a line of treatment based on common sense rather than on scientific theory, that the nature physician who is not defended by a very skilful advocate becomes a martyr for a good and noble cause

He must act as if he always remembered the text: "Be ye wise as serpents and harmless as doves."

Patients of weak character are apt to lose confidence if a crisis sets in, and send for a medical man, who is only too glad to find such a golden opportunity for throwing discredit on his rival. Often the nature physician has accomplished the chief part of his task, but the other claims to have cured the disease. More often, however, he undoes all that has been effected, and irreparably injures the patient.\* For patients of weak character and meagre intelligence the natural system is far too good. They had better continue to allow the medical profession to use them as animals for the purpose of vivisection.

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\* In proof of this assertion, I will quote an interesting communication sent by a qualified physician who has adopted the natural system, to the "Naturarzt," a journal intended to encourage care of the health and treatment of disease without drugs. No. 6, 1893:

"A question was sent from Werschetz, in South Hungary, asking whether, in the case of diphtheria, any benefit were derived from forcing cotton wool into the throat so roughly as to cause bleeding, and death had followed within twelve hours. Two children, aged respectively nine and two years, who were suffering from diphtheria, were treated at first by a nature physician, and were making satisfactory progress, but the medical man gave it as his opinion that, after the diphtheritic membrane had been expelled, it was indispensable to wipe out the throat with cotton wool. This was accordingly done, the children lost a considerable quantity of blood, and both died of exhaustion."

"My answer ran as follows: 'In Germany experience has long condemned such a proceeding as not only needless but dangerous. It would seem, however, that this experience has not yet reached South Hungary, or rather the medical practitioner there. If an advocate of the natural system had acted thus, the medical profession would have lost no time in denouncing him, and a court of justice would have sentenced him, on the strength of such a denunciation and of scientific evidence. But no action can be taken against a qualified practitioner, for the fact of our having passed certain examinations confers upon us the privilege of killing people. If anyone attempted to prosecute him, he would plead in his defence that he had often applied the same treatment with no ill results (this may very well be true where he had to deal only with inflamed tonsils); or he would maintain that it was very harmful for the patient to swallow the membrane.'"

The best argument that the medical profession could employ would be to prove that they understood the art of healing disease, thus leaving the sick no excuse for having recourse to unqualified men.

That medical men profess to heal disease is no proof that they have the power to do so. No man would betake himself to a "quack" if an ordinary physician treated him better.

Healing diseases is not a science but an art. We do not ask other artists to treat their arts scientifically. Success is the test of an art, and it is so with regard to healing disease. As Dr. Hyrtl, of Vienna, says: "Any man can heal diseases who knows what is an efficacious remedy."

Reforms, of whatever kind they are, seldom receive fair criticism from those against whose methods they are aimed. This is a matter of course, and is true of the attempts made to reform the art of healing, which take various forms and follow various systems. Nowhere are they calmly criticised by their opponents, the supporters of the recognised medical science, but they are met with outbreaks of fanatical hatred, open hostility and abuse, aimed less at the methods themselves than at their supporters.

This being the case, it is all the more pleasant to find antagonists joining the ranks of the reformers, and to see that, though they do not adopt all the revolutionary theories, they nevertheless venture to take a dispassionate view of things, and seek an explanation of the facts presented to them.

All reformers, whether they are advocates of water treatment, homœopathy, baunscheidtism, or the Jäger system, have an ally of this kind in the person of Dr. Ernst Schweninger, Prince Bismarck's medical adviser. He has written two excellent articles, full of plain-spoken truths, entitled "Physicians and Quacks," and "The Diseases of the Future and the Future of Disease." In these he gives us a very interesting view of the side-lights of the practice of medicine, and we glean some information that is valuable rather than satisfactory regarding professional modes of proceeding. He also, in incisive and convincing terms, refutes the charges brought by the "profession" against the so-called "quacks," and shows that there is very small ground for them.

Had any other than Dr. Schweninger dared to adopt

such a tone, there is no doubt that the members of the privileged science would have been up in arms demanding an explanation of what they would have described as "an insult to their professional honour, and an injury to their material interests."

But no one dared to say a word against Schweninger, his reputation was too great, and every patriot owed him a debt of gratitude for having known how to restore the mighty chancellor to health and to preserve him to his country, after he had been treated without the slightest success by medical men of the highest repute and dignity. A man of Schweninger's calibre is never blamed by the profession.

This brave stand made by the above filled us "quacks" with joy, and we owe him eternal gratitude. His pen is dipped in poison; he heaves great blows at the so-called science and its representatives. But let the reader examine the following, and wonder, aye, wonder at the generous frankness and boldness of one of the most celebrated of doctors.

### Doctors and Quacks.\*

"The medical profession is losing its prestige, and any thinking person must know why. We ourselves are mostly at fault. But the driver curses the bad road if he upsets his cart when drunk, the child beats the table against which it has bumped its head, and the doctor blames the 'quack' who robs him of the esteem of men.

"We read daily articles of anger and warning as to the ways of wise women; constant accounts appear of the evils wrought by incorrect diagnosis; yet patients consult the 'quacks,' and men like Kühne and Gössel have the most important practices in the kingdom.

"How is this? Are people really so foolish that they think the quack cleverer than the doctor? Surely not; where there is a choice between sour cheap wine and damaged champagne we choose the former, and in the same way the person whom the doctor has deceived goes to the quack.

"The mockery of prescriptions is so obvious; the chemist alone believes in them now, for his faith is his income;

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\* The absolute and emphatic permission to use this was given me by the valued author, Professor Dr. Schweninger, of Berlin, and by Herrn Harden, the editor of the interesting scientific and political weekly, "Die Zukunft" (The Future).



patients know that there is quackery in the 'profession,' and that they would rather trust themselves to the quack who follows the dictates of nature, and to homœopathy rather than to apothecaries' mixtures.

"We train midwives and they bosh their work; we favour chemists, and they trade in patent medicines behind our backs; we write about 'popular medicine' and our readers treat patients. We found Samaritan institutes, encourage voluntary nursing, lecture on first-aids to the wounded, and our half-trained pupils play at doctoring.

"Massage is too common to please us; we leave that to barbers, and we protest when they shake us off and cure themselves. We rave against quacks, but fill the advertising departments of newspapers with 'puffs' in favour of remedies, baths, doctors, and health resorts.

"The press kills by means of silence; medical papers are full of accounts of quackery proceedings, and the name of Kneipp occurs in every paragraph.

"We open a sanatorium: the papers praise it up; circulars are sent out, artistically printed, for professional and non-professional men must know that yet another establishment, with 'perfect and newest methods,' is ready.

"The regular summer articles on health resorts teem with untruth; every hole and corner becomes a bath, and for each of these a doctor dishonours his degree and his knowledge by professing to cure heart, lung, and other affections.

"In former times doctors wore red, and went from town to town to the sound of the trumpet as it were, urging the public to buy gout pills and rheumatic belts. Now it is the press that lauds our 'universal remedies;' the inventor of the same sends a notice on himself, and the value of the new remedy, to the editors, with a polite request that he may publish it; samples are sent to other doctors all over the kingdom. Soon one of the fortunate recipients praises its efficacy in a medical journal; the dailies copy the article; these paragraphs are distributed all over the world. So long as the inventor pockets a lot of money, and becomes known, it matters little that science has been fooled and that the sufferers have wasted their money.

"As we work with the most wretched patent medicines, how can we be irate when such men as Richter and Brandt, Shepherd Thomas and Kneipp, emulate our profitable methods? For many distinguished men have not hesitated to lend

their name to Swiss pills, and other poor stuff of the same kind.\*

"We therefore drive the public to quacks. When Miller, senior, dies, Dr. Crow says that he was wrongly treated by Dr. Smith; but then the latter can tell how Crow used cold water frictions for Mrs. Werner, who was consumptive. So, as long as medical men put into practice the old saying of the pot calling the kettle black, it is natural that patients will go to quacks, and that the latter will write them all down — fools.

"Who now is the quack? What right have we to persecute him as if he were a murderer? Who instituted the water treatment? — Priessnitz, a quack; and Ling's Hygienic gymnastics? How about these, and all the other quacks who caused the lame to walk, cured women's diseases, and taught us all about massage and muscular exercise? Priessnitz, Hessing, Ling, Wolf, Brandt, Kneipp, and Thomas, will leave their mark in history long after our most celebrated names have been forgotten.

"Despised homœopathists have proved that patients need not swallow the contents of a chemist's shop to get well. We still despise natural means of healing, but these will drive medical science to the wall, and the day will come when its teachers will no longer be looked upon with scorn.

"There is another reason for our hatred. We may recognise their results as good, but cannot brook their making money. When Hessing gave demonstrations in Berlin with his apparatus, all the surgeons crowded in; now we hate him because he charges for the use of the same. But do we not act just the same when we accept £ 20 for an abdominal operation?

"Science runs to money, and as we, in our greed, try to calumniate a colleague, so we want to suppress the quack, who, according to our point of view, 'spoils the trade.' But all this legal pestering will achieve nothing. As soon as we make good the damage done to our reputation we shall

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\* Virchow, the celebrated, was one of these; for he himself took the "unprofessional" Swiss pills for some illness which troubled him, and sent the inventor a testimonial of gratitude, which the latter naturally used as a splendid advertisement. This praise of a "patent" by a professional man was too much even for his mildest colleagues. There was much fluttering in the dovecot, and articles appeared deriding the cure of the great Professor Virchow by a quack. This happened in 1884. (The Author.)

recover our former prestige; patients will return when we deceive them no more. But whilst we remain professional or scientific charlatans, the public cannot discern between the doctor and the quack.

"Meantime, it is ludicrous to put into words the figurative complaint of the man of science, as it appeals to law and government examining bodies: 'Daddy, Pastor Kneipp will take all my bread and butter!'"

### **A Doctor. The Future of Disease.\***

From a Lecture by Dr. Schweninger.

"It is a common thing to lock the stable door after the horse has been stolen; the student, too, begins to study just before the examination, and wonders where disease comes from and how it can be driven away. Might it not be as well to lock the door first? Students should work steadily, so as to view the examination calmly; governing bodies and doctors must evolve in times of health how to keep off epidemics.

"But the authorised system of medicine, as it is spread by scientific men and handed on through our universities, follows the practice of the Catholic Church, which allows its disciples to sin, with a view to absolution after confession. So the doctor with the victim of his paper science — he allows any irregularity of living as long as the patient visits him afterwards. The prescription takes the place of absolution. Medicine also knows the change of fast days and Sundays, and if a reasonable mode of life were always advised, people would not go about in trembling and fear, nor faint at the sight of pickles, as they do in times of epidemics. The plan of depending on medicine, as such, is a bad one; it has no remedy specially suiting an illness, barely can it suppress a symptom; this should be mere detail, for science ought to care for the organism, and strengthen it, so that trifling causes may not result in horrible diseases.

"The question which is asked, in the event of epidemics, ought to be framed thus: What are the measures which need consideration to prevent the outbreak, the spread, and the return of an epidemic?

"People rack their brains to discover the origin of cholera — whether it is carried by Russian emigrants, or Indian stokers

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\* This is quoted with the same kind permission as the former. See preceding note.

employed on the Hamburg boats, because they bear the heat better than the Europeans and claim lower wages. Both may be true, and even a great deal more. But has it really been imported. It has occurred in Europe till 1818, and although it has appeared at intervals, it does not prove importation. There are good and bad fungi years, but no one has ever really thrashed out the question of their ubiquity, so we cannot accept the fact that germs of disease are assimilated and destroyed, therefore the epidemic may return without having been carried. It is only another outrage in a new dress. The patient wants a name for his illness, and thinks the former doctor a fool for giving the name of gout to what another calls rheumatism; and people want to know whence cholera comes, being quite content if they hear a grand-sounding word which has no meaning.

"Hamburg folk are wrongly accused. They have not concealed anything, yet the cholera must first have been there to be recognised at all, and those who know the troublous roads of such proceedings realise that they are not done in a moment. People must die before they can be buried. The sanitary conditions of Hamburg are shocking, but why was this not remarked upon before? It is both useless and cruel to accuse in times of anxiety and peril. What happened in Hamburg could equally well have come to pass elsewhere. It is the fact of being caught at all which makes things worse, and those who live in glass houses are ever ready to throw stones.

"How now about quacks, who treat a number of people? Must they be debarred from giving notice of danger? The result would be an increase of patients, as these would say that he had no right to proclaim infectious cases. What determines the quack? About 60 or 70 % of our population die without certificated medical help; non-certificated men are called quacks, yet it must be owned that among these many more understand curing better than legitimate doctors. None of the latter can do without a Priessnitz compress, in spite of the latter figuring as a quack. Then Hessing, of Göggingen, too, has made marvellous apparatus, but has been driven away by calumny and scorn. Wolff, of Frankfort, whose cure for writers' cramp has gained testimonials from the most distinguished men, also has great technical experience. Whatever may be said of Kneipp, he, too, has rendered immeasurable services. He has instilled into the uneducated



mind the necessity of frequent and regular washing, and whether such ablutions have technical terms or not matters little. We must learn from all men, actively or passively. Some cultivated doctors think now that perhaps the needed reform may lie in the hands of those who follow the laws of natural healing. People must be weaned from the prescription swindle, and taught to realise that the name of the illness of which they die does not matter much.

"A large proportion of doctors have acknowledged the uselessness of prescriptions; they are, however, practically bound to keep to this plan, because their patients are only comforted by having in their possession this written remedy. Thus medical men unwittingly become the tools of their patients, and often also the supporter of the chemist. A new tincture is mixed, advertised at great expense, and this cure is announced to the world. It is the same old story of providing the remedy killing the patient, whilst no one asks who profited thereby.

"No one need glory over the progress of medicine; it runs the circle, like cholera, for instance. One looks back past thirty years, when cholera patients might have been burnt, and certainly better disinfected than nowadays. The *Encyclopædias* published in 1837 condemn cholera in a manner now revived. We know that it originated in India, that it spread through navigation, that it follows river courses. These facts were met by means of warmth, compresses on the abdomen, chloride of lime, acids, etc. It matters little that remedies were suggested, and the variety of medicines are of as little import as their colour. Mr. Stanhope, whose letters have been published, visited the cholera-stricken place, and identified himself with the patients by swallowing their expectorations. What did he prove? Only that infection did not affect him any more than it did many doctors and nurses. But all the same, some new specific will be found and chemists will prosper.

"Meantime the latter hold the first position, and the whole world will be immune, and, anyhow, no harm will be done. During the next epidemic, and in spite of vaccination, there will be further remedies against cholera, and chemists will prosper.

"So the trade reigns supreme, and the whole world can be disinfected. Whether the fact that no harm is done implies that ills will not ensue is questionable. Naturally, the bowels

cannot be touched, and the body cannot be boiled, but medical authorities may be able to state how bacilli are spread, and will state how it is that bottled germs disappear — those we carry about are more sensitive. This question is most important, because many people, especially women, are attacked with nervous disorders induced by disinfectants used in trains. Here chloride of lime and carbolic acid, combined by the nervousness they produce, have resulted in disease. The germs to which travellers are susceptible are mixed with the dust thrown in the eyes of the public, to make them think the danger past. But cholera, like other ills, will come and go, and the remedy lies in making people more capable and less sensitive; to achieve this, two eggs, or a good piece of meat, will do more than any disinfecting process.

“Professor Koch deserves praise for the discovery of the surest sign of Asiatic cholera — the bacillus is the best sign, but science must determine the place it occupies in the development of the illness. Nothing has yet been ascertained; but the bacillus is assisted by human nature, otherwise there would be no cholera. The more practical medical men have to acknowledge this double action. The unfortunately-forgotten efforts of Pettenkofer proved that there must be times, localities, and individual causes to bring about a cholera epidemic. We cannot determine everything, any more than summer, winter, rain, frost, etc., can be induced, but we may judge localities, climate, and emanations fairly well. We can make towns more sanitary, drain districts, and regulate the water supply. Equally we can prescribe sanitary dwellings, more nourishing food, and a more reasonable mode of life. Cholera has been called the disease of the wretched, and rightly so. Lessen misery, and epidemical danger decreases; social questions depend on medical ones; the man who eats and drinks to maintain his normal condition holds the remedy for many ills.

People talk nonsense about bacilli, and doctors do the same; they generalise the disease without considering the individuality of the patient. Cholera will puzzle everyone, since its origin is unknown, and contagion goes hand in hand with miasma. Cholera may become less feared if it is proved endemic. But practical doctors would be foolish to wait for this ultimatum; every road leads somewhere, only no one can tell beforehand which is the shortest. There are 10,000 illnesses and only one health, and diseases come as

suddenly as life and death. Physic, which is never a curative medicine, will only more or less work upon symptoms; as such it should never be used twice, because it is a necessary evil, and cannot satisfy the needs of the system. The doctor who merely suppresses pain temporarily, without driving its cause away, who merely comforts his patient with his "magic" slip of paper, should be the last to throw stones at the quack, for the former only works with palliatives. In epidemics, however, one draws a veil over matters to hide them from view, though by doing so we ensure their cropping up in another place.

The following articles from the Hessian Folk's newspaper may inspire my readers with confidence in the Medicine of Nature, and in those who practise it. One of these, by name George Weicker, cured the renowned historian, Professor Dr. William Oncken, of Giessen University.

In January, 1885, the account of the ovation of the Giessen students to their Professor, after his long illness, was given. It was then stated that Dr. Oncken, after vainly trying medical treatment, owed his recovery to the aforementioned Weicker, of Auerbach, a. d. Bergstrasse.

On January 16th, another paragraph, doubtless inspired by the "Profession," appeared. It ran thus:

"Your esteemed paper lately announced a widely welcome piece of news, namely, the recovery of Dr. Oncken, and his return to the University. Allow me to remark, however, on the illness and its treatment, as my information hails from reliable sources.

"The Professor suffered from inflammation in side and heart. The doctors had not given his case up as hopeless, but were dismissed by the family, one of whom, who called to see the patient at one o'clock in the morning, being told that a lady who practised according to the laws of nature had undertaken the case. As she was not able to master the disease, a male "colleague" was called in. Eventually the family had to resort to allopathy again, and another medical man attended. This is a true statement, which, with your courtesy and your interest in upholding right, you will kindly insert."

"(We accept the above, of course, although it is followed by an absolute contradiction on the part of the patient. Being impartial, we can express no opinion either for the partisans of 'nature' healing nor for allopathy, but we think

Professor Oncken the only man to decide this particular case. If he really owes his life to the unprofessional system, his declaration must obviously silence the writer of the above.)

Professor Oncken's "Declaration" followed on January 21st.:

"I gladly give this declaration to the Editor of, etc., with pleasure. With pleasure, because it concerns a good cause; but regretfully, because in so doing I practically damage another. I declare that the 'true statement' vouched for by the writer is false from A to Z, and if he was informed through a reliable source," he was shamefully deceived by the same.

"According to the fact stated, I suffered from pleuritis and pericarditis; in this case how about the lung trouble, which gave me terrible pain, and was the cause of my illness. None of my medical attendants had any doubt on this point; the professional doctors agreed most emphatically; one of them told me so, on October 24th, when I thought the pain in my shoulder was caused by rheumatism. On the 27th, he said the 'whole of the left lung was attacked,' as our diary proves. On the 28th, a University professor, consulted by my doctor, corroborated the statement in my presence. The lung diagnosis was carefully stated, no mention being made of pleuritis. If it existed, as is possible with lung diseases, I can but assume that it must have disappeared when the change of treatment of October 28th occurred, together with the heart trouble, which did exist.

"So the writer was not informed of the principal cause of my illness, a proof that his source was not a reliable one.

"Worst of all, however, is his remark on the occurrence of October 28th, between 8 and 9 p.m. (not a.m.), concerning my family, and in which I had no part. Again, I only had one doctor.

"The mention of my private affairs constitutes an insult on my wife and daughters, and those who do not know them must have a strange opinion of them. The facts are these: On October 28th, after at least five visits during the day, the doctor paralysed my people by the ominous tones in which he declared that the heart was attacked as well as the lungs, and asking for the advice of Professor Dr. R. "Hurry, hurry, and bring him!" added he, 'you owe this to your father.' The consultation took place, and the same treatment was to be continued. Then my wife, wringing her hands, said to our doctor: 'I beg you earnestly to forgive me, but we



cannot have any confidence in the carrying on of a treatment which has failed to obviate so fatal a turn in the illness.'

"This positive, but courteous declaration, naturally put an end to our doctor's visits. There was no summary dismissal, any more than is the case when a landlord or tenant gives a polite notice. It is not only the right, but the duty of a wife who loses confidence in the actions of a medical man, to tell him so, and she earns the esteem of right-thinking people. The disagreeable insinuations made on this occasion will not affect her much.

"The one great objection in her eyes was the bag of ice which was ordered to be constantly placed in the region of the heart to reduce the congestion. (See 'Natural Law Treatments.')

"Anyhow, if there was anything wrong with my heart I can only say two things: first, that as soon as the doctor left, on October 28th, the ice bag was replaced by wet compresses; secondly, that from that moment until my complete recovery I never again felt the slightest pain in that region.

"The writer needs no more to enable him to pass judgment on his informer, yet the end caps all the rest.

"The reason which brought Herr Weicker, of Auerbach, is falsely given, but is a mild untruth compared with the statement concerning the necessity to which my family were put to return to medical treatment. This is grossly untrue, and purely imaginary. No other doctor came, for the simple reason that Herr Weicker really and completely cured me, in the three weeks during which I followed his treatment. When he left me I needed no help, and had I done so I should certainly never have consulted any one who was opposed to his way of thinking.

"My illness, which from the beginning proved complicated, will be described according to the diary of Lieutenant-Colonel Spohr, and Herr G. Weicker, both of whom treated me from October 29th. Here I can merely put down personal impressions. The Priessnitz-Rause-Hahn Method (without medicines) immediately made me confident that the simple treatment was quite satisfactory, and frequently marvellous in its results. As soon as the fever subsided I felt capable of any work, and was free from every symptom and trouble which usually accompany convalescence. With the treatment a certain diet was ordered, the common sense reason for which greatly appealed to me, unaccustomed as I was to such things.

"In carrying out all the details of the cure, I was the recipient of such devoted and constant attention on the part of Herr Weicker, that I shall never be able to repay him, nor could I ever forget him.

"This, I imagine, is all that need be made public, to convince others on a point which, much against my will, was brought before them.

"I sign this fully, hoping that no one ashamed of declaring his personality in the same manner will make further rejoinders.

"Nor can I be expected to have any consideration for anonymous correspondents.

"Giessen, January 17th, 1885.

"Professor Dr. William Oncken."

### 33. Various other Curative Methods.

*In necessariis unitas, in dubiis libertas, in omnibus autem caritas.*  
Unity in necessary things, liberty in doubtful cases, in all things charitable patience.

"March apart, strike together," so runs a strategic law. This applies to other methods which "march apart" from those of which we have spoken, and yet, like them, are opposed to medical science. Therefore they may be considered in the light of confederates.

The final words of the motto carry with them a deeper meaning still, for all treatments dictated by the laws of nature have one and the same laudable object, that of restoring health to the system without injuring it in any way.

Among these are: Homœopathy; the Wool Cure, or régime of Professor Dr. Gustav Jäger; the Magnetic Cure of Professor Korschelt, the Sun and Ether cure, Glünick's Vegetable Juice Cure, the Baunscheidtismus, and Electricity. (Respectively described in the *Encyclopædia*.) The latter forms part of usual medical treatments.

The principle of all the above is the same, and belongs to organic or non-organic life; each one works on the lines of careful observations and experiments, each one contains one absolute and exclusive whole. Unfortunately they do not work together; the follower of one method generally rejects another, *a priori*, and without a trial. The most

intolerant are water fanatics, who recognise no other principle; yet it is a well-known fact, that every impartial trial brings us nearer the truth, and introduces some undeniable benefit in the very matter which we were otherwise inclined to distrust.

"Try before judging," so says the opponent. I would impress all disciples of the workings of nature never to reject any one of its methods as poor without fair trial. In doing so they weaken their respective causes, since they thereby attack a confederate, who helps in warring against the "non-curative method" of medical science.

We who believe nature's workings rarely see fulfilled the wish that our opponents would impartially test our cause, with its full meaning, its blessings, and good results. Therefore it is more than ever incumbent upon us not to commit the same fault; on the contrary, we must work against a possible split in our camp, and dutifully avoid the weakening of a confederate's cause.

"All roads lead to Rome." Many methods can restore long-lost health — one in one way, one in another. Age, constitution, temperament, sex, family, social and professional circumstances concerning the patient, and many other details, determine the nature of the treatment, why therefore should one method be blamed where circumstances forbid the application of another?

The "natural" systems are all on the opposition side in word and deed. Without exception they war against the delights of the medicine case, against the blind faith in large doses of poisons, against the love for operations evinced by surgical science, and the ridiculous obedience to "authorities" shown by the "hypnotised" many.

Why, then, should each of these similarly-minded sections respectively wall itself in. If this be done, we lose our influence and our prestige, and fall into the same self-confident condition and intolerance which we deplore in the profession.

No method whatsoever can justly claim to be the one universal cure; in both chronic and acute cases one or other proceeding may have to be renounced. Truth and justice demand this confession. Every intelligent person must see that efforts made to cure the diseased body are limited by the possibility of the cure, and this naturally varies with almost every patient and every disease.

By refusing to look upon one particular method as universally efficacious we save ourselves and others from disappointment. The duty of real healing science is to find the treatment most suitable to the individual; if this be according to nature, then it belongs, more or less, but emphatically so, to the so-called Nature Cure.

### 34. Fever and its Treatment.

Such common expressions as these: "The patient's fever is high," "if only the fever would abate," etc., make us wonder what the word implies.

As has been stated, the chapter on "Amalgamation of Substances" shows that fever is a heightened process of the combustion of building-up substances in our organism.\*

This abnormal condition is accompanied by increase of bodily heat, the variations of which give us the power of judging of the course taken by the fever. As the reader knows, the normal temperature of the blood is 98°; it varies slightly, even in health, according to the time of day, the condition of the body after rest or exercise, age, temperament, constitution, etc. But the variation rarely exceeds one whole degree. At 99° there is already a sign of increase.\*\*

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\* An interesting lecture was given on this subject by Dr. Kantani, a Neapolitan medical authority, at the International Medical Congress in Berlin, in presence of about 6,000 doctors, entitled "Fever and its Treatment."

"Fever implies the rapid change of organic matter, which goes hand in hand with the increase of matter. Our system absorbs a larger quantity when fever is present; according to the nature of the disease one or more tissues of the body are involved. Malaria and rheumatism of the joints destroy more blood corpuscles, typhus attacks the fat, tuberculosis the tissues, except those of the nervous system.

"The meaning of fever is not always grasped. It is the inevitable result of many diseases, the necessary reaction produced by the struggle for life between the irritating microbes and the tissues. Therefore the treatment is not to check it so much as to limit it; we cannot hope to find one febrifuge which will accomplish this, whatever the nature of the complaint. Our endeavour must be to remove superfluous heat without decreasing its manifestations, as this might be fatal, therefore we recommend cold baths and wet packings, etc.

"Our duty, as natural law healers, is to examine the nature of the disease, so as not to work against nature by personal therapeutic impressions."

\*\* The temperature of adults is taken by placing the thermometer in the armpit or under the tongue, and closing the arm over the breast, forming a right angle with the elbow. For babies, the thermometer, after being oiled, is put in the back-passage for ten to fifteen minutes. A so-called "maximum



Professor Dr. Wunderlich, of Leipzig, a great authority on temperature, gives the following specimen table:

Slight fever,  $99^{\circ}$  to  $99.5^{\circ}$ ; moderate,  $99.5^{\circ}$  to  $100^{\circ}$  in the forenoon, to  $100.5^{\circ}$  in afternoon; considerable, early  $100.5^{\circ}$ , late,  $101.5^{\circ}$ . High, over the two latter respectively. Danger is marked by  $102.7^{\circ}$ , and there is but scanty hope at  $103.5^{\circ}$ .

But fever shows itself in many other ways, which indicate other workings of the process of life. There are three prominent stages.

Shivering indicates the first; trembling of the body, and a desire for more coverings, which do not, however, produce an increase of warmth. The muscles are cramped, and the blood rushes to the heart and abdomen, so cold in the extremities and internal heat trouble the patient — the latter is evidenced by testing the heat of the body in the shivering state, the thermometer then marks  $100^{\circ}$  and more.

The hot stage is reached after a longer or shorter period, when the fever is at its height.

The skin is hot and dry; the lips, tongue and throat, parched; the tongue is dark red and jagged, and, together with the gums, covered with a yellowish substance. The heart and pulse beat faster, breathing is accelerated, the digestion disturbed, appetite goes, and thirst is unbearable. The nerve action is impeded; weariness, depression, restlessness, headache, buzzing in the ears, etc., rule the day, either together or in turns, in more or less degree.

The muscular power being impeded, it becomes difficult to think; sleep is broken and nightmare is frequent; consciousness goes at a moment's notice when fever increases; delirium or sleeplessness sets in.

This second stage presents a variety of features. Gastric juices and circulation are alike affected, everything pointing to a change of combustion, to an abnormal condition.

The third stage is the sweating one, and heralds some improvement. The temperature then becomes normal.

Fever, then, is the outward sign of the internal course of the healing process, a fermenting state tending to drive out the irritating toxins.

These relieving signs may show themselves in different ways, according to the struggle of the body with its enemies;

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thermometer," with rapidly-rising quicksilver, which remains stationary at the point, is recommended. See "The Use of the Thermometer," in second part of my book.

according to the quantity and quality of extraneous matter, and the age, sex, vitality, etc., of the patient. This, working together with innumerable dangerous symptoms, sometimes passes off in a couple of hours. This is the case with some women and children, and with very sensitive people; it is with such that natural treatment succeeds so well. But they must be well watched. The least chill brings about a state of ferment and fever, which rushes up the temperature, and passes off as quickly. This shows a generally favourable condition of health; these patients are not troubled with any serious accumulation of toxins. A fairly healthy body takes every opportunity of freeing itself from irritants; the more acute and the shorter the feverish attack, the more drastic is the natural healing power of the organism.

The danger wrought by fever depends on its degree and duration; 103° can only be endured a few hours, 102° rather longer, according to the resisting power. Children bear it better than aged or older people, especially if they have been exhausted by long illness, or intemperance, or epilepsy, etc., then their life is endangered. Fever produced by typhus or inflammation of the lungs quickly lessens the weight of the body. This is owing to the albumen, the combustion of fat, the necessary decrease of food, and the lowered condition of the digestive organs and of the bowels.

If it is brought about by acute inflammation of certain organs, it can last for days or weeks, with occasional intervals. Again, the temperature may suddenly fall, or it disappears gradually, with alternate increase and decrease. If it sinks to below normal, with a lowering of vitality, quick but very weak heart-beats, and the hands, feet, ears, cheeks, lips and nose are white and cold, it is the sign of a torpid condition of fever, which may portend a fatal termination to the illness.

Until quite lately, the "Profession" considered the suppression of fever their principal duty; inexperienced people still think the same thing. But it is a great mistake, since it is the natural struggle on the part of nature to cure itself. The thing to do is to enable the system to achieve its object. We must reduce its threatening nature by lowering the temperature; sudden suppression involves impotence on the part of the organism to free itself from its toxins.

There is one exception when the combustion not only rids the body of the extraneous matter, but attacks the

system itself. When that is so the fever must be stopped. for it stands to reason that the organism will give way to a stronger power. A too high or a too low degree of temperature is alike a danger in such complaints as diphtheria, blood poisoning, etc.

But it must not be checked by so-called anti-pyretics (from the Greek anti (against) pyretos (fever-heat); quinine, anti-pyrine, anti-febrin, phœnacetin, digitalis, etc., as do the members of the "Profession," even though one of their most distinguished representatives, Professor Liebermeister, of Tübingen, recommends water as the best means of reducing the temperature. Every anti-pyretic remedy may produce strange and threatening symptoms, as well as ultimate poisonous results. There is nothing whatever which justifies the use of these poisons, nor any certainty concerning any dependable favourable action on their part. Medical science prescribes them to arrest the fever, which must not be checked; also with the object of obviating dangers, but by so doing greater dangers result.

The Natural Treatment seeks to decrease the accompanying symptoms, such as nervous irritation, disturbed circulation, etc., and strengthens the organism in its work of elimination.

Complete mental and bodily rest is a *sine qua non* for reducing the temperature, and the principal feature of the treatment; therefore, except in slight attacks of febricula (feverishness), the fever patient must keep his bed.

We must take into consideration the fact that two-thirds of the blood could find room in the upper surfaces of the skin, and therefore the regular warmth of the bed helps to regulate and to transfer the blood from the inflamed organs. The reader must have experienced this, and felt the blood flowing more evenly to head and feet. In a state of rest and warmth the rush of blood to one place is obviated, and with this the danger of congestion in any special organ set aside.

The sick room must be rationally and well-aired; also free from damp. Occasional renewal of various articles of bedding, and altogether most scrupulous cleanliness, are needed to free the atmosphere from possible miasma and contagion. A fever patient should not lie in the parching air of a heated room; a basin of water must stand in a suitable place, for it imparts moisture, and purifies the atmosphere by reason of its attractive properties.

Diet must be suitably provided for. Nourishment should obviously not be cut off, but given in such a way as to make up for the strength and substance the patient loses in the natural course of the illness. He loses carbonic acid, nitrogenous matter, salts, water, etc., in greater quantity than when in health, and some substitution must be made or he will waste away.

Owing, however, to the abnormal state of digestion, the food must be suited to facilitate assimilation, and liquids are advisable, as being more digestible and assimilative. This sustenance must be kept up by small but frequent rations.

Good fresh water is the most nourishing and sustaining liquid, and may be given freely, especially if asked for; but even if it is not desired it is imperative to administer it in small doses, to lessen the dryness of lips, mouth and throat — lemon juice may be added with advantage; thin gruel, barley water mixed with cow milk, rice water, fruit juice or stewed fruit, may be used with confidence. The natural taste of the patient may be considered as well as the state of his digestion, so he must not be forced to take what he does not like — it will most likely disagree with him and do more harm than good.\*

According to circumstances, a few spoonfuls of some liquid nourishment should be given at short or long intervals, according to the peculiar nature of the case.

Neither meat nor meat broth suit fever, and must be avoided. Recent discovery has proved that substances derived from the vegetable world were desirable, as producing albumen and strengthening the tissues. But as with healthy persons one may do much harm by the use of too much albumen, so it is to be avoided in the most careful manner in fever cases; it must not be absolutely banished, but should exist in only sufficient quantity to facilitate digestion.

The treatment of fever by the water cure must be strictly individualised; people only have certain resemblances to one another — age, sex, constitution, disease, and degree of temperature, determine the course of action, the feelings of the patient for more or less warmth should be particularly

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\* The instinctive desire expressed by the patient, being the voice of nature as it were, is the best guide in this matter; total and temporary withdrawal of food is sometimes resorted to, but this with young children most of all. With them feverish illnesses are generally the result of previous over-feeding, and fasting is the best remedy.



considered. In cases resulting from a so-called chill, the patient's dislike to lose any warmth can be overcome by the "cooling" process. If the skin is cold, the water treatment precludes a "cold" application, warmth must be induced by a warming treatment. Patients instinctively seek to induce perspiration by hot drinks and many blankets. We know, from preceding chapters, how useful the pores of the skin are for the elimination of toxic substances; it is, however, sometimes difficult to make the skin work to good effect, owing to previous wrong treatment, or to the fact that the moisture of the body is being absorbed by the heated internal organs; the lungs and kidneys in certain illnesses, too, do not throw off enough water.

In the first shivering stage, a vapour bath in bed, or up, according to the strength of the patient, is the best moisture producer; the blood, made to run more freely to the surface, throws off the toxin, and relieves the pressure on the internal organs. The baths are intended to induce activity more than actual sweating; they have a refreshing effect, but must be followed by cool sponging.

In the second heat stage, as previously described, a modified cold water treatment is advisable, for cooling, soothing and eliminating purposes, with half and complete packings; the low temperature of the latter must be determined by the condition of the patient. The higher the fever and the lower the vitality, the more temperate the water should be. This abstracts heat from the body and induces moisture of the skin, so that the need for cold water is natural in this stage.

In the third stage, when all the renewed activity has produced a combusive process, and driven away all the extraneous substances, objectionable, poisonous, and otherwise, the blood circulates freely to and from the eliminating organs; the skin moistens, colours, and loses its unpleasant odour; the taste improves; the urine flows more freely, with its sediment of poison; the excrements are dark — then warm compresses, alternated with colder ones, are applied to induce perspiration.\*

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\* We know that sweating is one of nature's remedies, therefore it is also a great factor in the Natural Curative Treatment. Perspiration varies. When produced by vapour on the blood vessels of the skin, i.e., artificially, the quality is not the same as that which results from the natural working of the pores — the former is more plentiful, the latter contains more eliminated

To favour the natural efforts of the organism, friction is required. Then recovery is at hand. (See further, "Introduction to the Fever Treatment.")

In cases of obstinate constipation, during the three stages, and with due care, enemas are desirable; in the second stage the cold one is preferable. It cools, disinfects, and extracts ptomaines; the moderately-cold water thus introduced can be removed after fifteen to forty minutes; this affects the internal organs in the same manner as a cold bath does a hot body. (See further, "Enemas.")

Schroth's grand discovery of the necessary, healing, and cleansing effects of fever, was due to this observation: that complaints heralded with high fever are promptly cured, whereas, in case of little or no fever, the illness is always more protracted. This discovery on the part of a "non-professional" is one of the gems of our work in the "Nature" treatment.

Fever treated naturally is a guarantee against a repetition of the same illness, and brings about a needful and cleansing reorganisation, as it were, of the internal substances. It brings an increase of albumen, and carries off fat and water; it is this which often brings about the great improvement in health and general bearing which we so frequently notice in those who have had severe illnesses.

So that, to use a popular phrase, "Fever is healthy" when it has been overcome by nature's dictates. For nature heals, and therefore we are right in looking upon fever as a curative power.

### 35. Illnesses produced by Chills, and their Causes.

The words "I have caught cold, or a chill," are almost as stereotyped as the conventional "How are you?" And what do the former signify? A cold implies the evil results of something which has chilled our body. The tendency to catch cold is increased by neglect, or by the impeded or disturbed function of the skin; the breathing, the exhalation of the body and the regulation of bodily heat, are in a bad state; add to this a sudden change of temperature, and you have

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matter. The same thing may be said as to the effect of different sweat producers; the vapour bath gives the same sort of perspiration as the former, but the bed and packing process throws off more actual toxic matter.

an irritating element working on the skin. (See "Short Hints for some Uses of Water.")

We have shown how the skin regulates bodily heat, with which the circulation and nervous system are closely linked, the nerves taking an important position in the system.

For the sake of simplicity, let us take the most common example of a chill caused by draught, damp clothes, sudden shock, etc. At a given moment, owing to the connection of nerve centres and blood vessels, they contract, cause a rush of blood inwards, the skin becomes cold, dry, and bloodless, and emits less moisture in consequence. Soon the blood rushes back to the skin, in order to enable it to produce an increase of moisture wherewith to counteract the paralysing chill, and to restore the natural order of balance. But, owing to lack of habitual precautions, the skin is not fit for its duty; the pores are closed with the inevitable dust and dirt with which we come in contact; the nerves have lost their power. The blood returns inwards, overfilling parts not intended to contain so much, and produces inflammation of the internal coatings or mucous membrane; this eventually brings further congestion, with secretions, well-known by the name of catarrh. (Catarrh, a running fever or cold, from the Greek, *katarrhein*, flowing down.)

The secretions are increased by illness and by circumstances attending it, such, for instance, as continuous talking, cold drinks, inhaling cold air, dust, etc., and bring about inflammation of the mucous membrane of the breathing apparatus — the nose, the throat, larynx, bronchiae, etc. The latter is called "chest catarrh." If the nose, etc., is affected, the victim has a cold. Careless diet causes the same disturbances in the intestines, called stomach, kidney, bladder, etc., catarrh. Eye catarrh is not unusual.

Serous membranes, muscles and joints, are liable to congestions of this kind, brought about by temperature, damp, etc. These have been described as rheumatism, though there seems no sound reason to justify the use of this term.

The principles of inflammation of the serous and mucous membranes work exactly in the same way as in the case of any injurious effect on the outer skin. The blood works abnormally, as previously shown, and the harm is done.

In the same way this impeded circulation affects the hands and feet; and should there be any toxic or irritating substance in the body, the inflammatory condition will set

up a general ferment, which must work itself off. Thus, when a chill has taken place, complications may be numerous.

A chill, therefore, is a feverish state, combined with a ferment of toxics, generally known by a feeling of cold shivering. There probably is nobody in this world quite free from extraneous matter. The shivering is only one sign of chill; other symptoms follow, and the ultimate aim must be to assist elimination.

The skin must first be treated, in order to reopen the pores and facilitate the perspiration. The proceeding has been described in the earlier part of this book.

But to return to the point. Considering our climate, with its constant changes, and other circumstances which favour illness, chills are among the most frequent, though not the most dangerous of complaints. But why do some persons constantly take cold, and others so rarely? Why does one man recover in the open air, and with a capricious temperature, whilst another contracts a fresh cold? Is it mere chance?

Open air will not necessarily produce a chill; a second cause must exist, and that depends entirely on the individual, on the existence of internal irritants or general predisposition. External circumstances also combine to do the mischief. The man who has assimilated the larger proportion of toxins will be more sensitive than another. As shown in the chapter "How to guard against Illness," we know how air and temperature may set up irritation, or act as counter-irritants, in consequence of which a chill may be cured or contracted.

This brings us to the hardening and "coddling" process; the former prevents, whilst the latter encourages the taking of colds. The hardened body has a more active skin, obviating an over-assimilation of extraneous matter, and facilitating elimination. The other kind, the weakened body, works in exactly the opposite direction, and catches everything! The chill and its consequence will, however, be beneficial from the purifying point of view so often explained; but should the constitution be too enfeebled to work its own recovery, a chill adds fresh toxin, and eventually taxes the vitality to a dangerous extent.

"Fortunate is the man who can take and support a chill," say I, to the now-a-days much burdened humanity. Look upon it as a powerful healing crisis, an effort of nature to bring about thorough cleansing of the human machinery; the



remedy is practical and effectual; when the body is cold, apply warmth and induce perspiration; if the skin is hot and parched, cooling compresses and opening remedies. But harden yourselves by living a healthy life; eat good wholesome food, wear porous clothes, be careful of the condition of the skin, take open-air exercise, etc.; indeed, to obviate the accumulation of irritating and extraneous substances in our system, we ought almost to be "chilled" every day, and so work out the natural crisis!

### 36. The Disease of the Day — Nervous Debility.

"There are more imaginary healthy people than hypochondriacs."

The exacting demands made by modern civilization upon our bodily and mental powers, the love of good living evinced by the well-to-do classes, the privations endured by the poor, and a thousand and one other circumstances, bring about a number of complaints which are grouped under the heading of "Nerve Diseases, or Neurasthœnia," because they primarily attack the nerves at a time when they are in a state of sensitive exhaustion.

Nervous ills have existed even from the time of Hippocrates, many of which are merely the result of over-excitement or irritation, but this lack of nerve vitality is now one of the products of our day. As far as we can reach, we trace a link between the characteristics of any given period and the diseases prevalent during the same. Now there have always been cases of nerve patients, but never until now an essentially neurasthœnic period. It has been reserved to our century to boast of this as a speciality, and that as a direct result of hyper-civilization. The difference between our times and old bye-gone days lies in the keen endeavour to make researches in science of all kinds, and to bring them to bear upon every phase of daily life and commerce. These efforts, praiseworthy in their general character, carry with them inevitable but decidedly harmful results for health and society. Undue calls on vitality, fresh needs, increased and constant brain work, perpetual striving after money, competitive work, the fever of speculation and the demands of social intercourse, with all their attendant worries, keep up a "high-pressure" which is fatal to one and all. Supply is greater than demand, and the rush for

existence and daily bread, combined with luxurious living, smoking, care, sleeplessness, produce many of the ills already enumerated in this book, and are as ruinous to the system in their way as inoculation, strong poisonous medicines, abnormal clothing, lack of air, light, rest, or exercise, etc.

Of course there is heredity or predisposition to consider. But, apart from this, there is a special sensitiveness in some people who have become nervous through other circumstances, and this shows itself in exhaustion and shock of the nervous system. This is like the skin. If the upper layer of the latter is firm, it feels full of life, and presents a smooth appearance; the minute ruggedness formed by the pores, etc., is scarcely perceptible; it is the fine tender skin. The uneven reddish surface is termed coarse. A resisting, non-sensitive nervous system shows practically analogous signs — in spite of an apparent contradiction of terms, the stronger and firmer nerves are really weaker than the non-sensitive. Both systems are in constant correspondence, as it were; both undergo the same phases, and are subject to the same redaction. This similarity of blood and nerve life watches over the general health and the organic working of the system. The blood, however, as was shown in former parts of this work, contains various extraneous substances, which are intended to be dispersed in the usual way. It follows that the nervous system must be influenced and irritated according to the amount of toxins and juices formed within the organism, and must undergo the same changes. If it is excited to a heightened activity, it affects the blood vessels and encourages the same irritation in them.\*

If the circulation is not normal, or is impeded by matter which must be eliminated, the working of the nerves is increased to a degree greater than that to which the blood is affected, the result being a detrimental one, so that good circulation and a healthy condition of the blood go hand in hand with the corresponding condition of the nerves. This healthy state of both blood and nerves is maintained by normal assimilation, which frees the body from possible toxic visitations.

As the nervous system is one of the most important organisms, yet is at the same time dependent on others, the

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\* This brings us back to the curative powers of living or animal magnetism, or so-called vital electricity. (See the Korschelt Sun Ether Ray Apparatus.)

complaints to which it is subject are most numerous. These complaints gain importance from these circumstances, and are often so complicated, that they puzzle the most experienced doctors, since the nervous system subdivides and individualises itself. (See "Nerves.")

Besides the brain and spinal marrow, which hold the most central nerve ends, the stomach and sexual organs also become affected; nor is any minute portion of the body exempt from possible harm, since the nervous system pervades every part.

The nerves of the head, the spine, the abdomen, may, for instance, refuse their service; here is a cold or warm sensation, or a pain in one organ or another induced by the nerves. Numbness also occurs; constipation, loss of appetite, acidity, heartburn, cramp, and other signs of stomach catarrh may trouble the patient, and, though there is no apparent connection, are one and all caused by the nerves. Then, again, palpitation, even the distinct re-echo of the heart-beat, occurs; the subject suffers from loss of memory, aphasia, all sorts of nameless irritating sensations, anger, hypersensitiveness, suicidal tendencies — in short, every possible trouble which can be enumerated or imagined affecting the human mind and body.

One person will be over-cheerful, another melancholy, silent and depressed; another becomes suspicious, or recklessly over-confident; or the sufferer rushes in for all sorts of amusements, whilst another seeks solitude.

Some nervous subjects can only bear life when actually driven by business and work, and take no rest; whilst others, from the same cause, can hardly lift a hand without distress and over-exertion. There is a perpetual struggle between duty and dislike for work, a depressed condition in which a man loses himself in the memory of past happiness. Sometimes the active spirit falls into the opposite fault, and vice-versa.

Again, reading and writing become impossible; there is flickering of the eyes and trembling of hands; or, after apparent absorption of much literary matter, the reader remembers nothing, or he skips page after page with the sole object of getting to the end of the book. People who could work in the midst of noise and bustle keenly resent the slightest interruption, and cannot bear the presence of anyone. The crunchin of paper, the sound of an object falling to

the ground, the scratching of a pen, street traffic, loud speaking, even in another room, may disturb them and irritate them beyond description.

It would be impossible to enumerate the complexity of nerve symptoms, they are innumerable. Indeed, one must have personally suffered from "nerves" to be capable of even partially understanding those who do, and it is sad to note that such sufferers are generally held by their surroundings to imagine their symptoms, especially where they are mental — this is emphasised by the fact that nerve-sufferers often have a very healthy appearance. But what a mistake! The fresh colouring merely hides weariness and weakness; it is the irritation of the nervous system which produces the healthy look, which is abnormal, and not to be trusted. As soon as the subject has a shock, the terrible weakness is pitifully apparent. They themselves often doubt their illness, because they mistake for real strength the temporary excitement which spurs them to action; they attribute their various symptoms to anything but the right one, and, with a persistency worthy of a better cause, they seek to conceal their sufferings until some catastrophe reveals the sad truth. They resent any doubt cast upon their state of health; they are averse to the science of expression, and wish the inventor further, since they owe it to him that their ills are brought to light when they themselves refuse to acknowledge them. These people are the "imaginary healthy;" innumerable they are, too, more so by far, than "hypochondriacs." Of the latter in fact there are none, for every mental suffering is founded on some material cause, on physical disturbances, which are detected in the expression of the face; but the others, all more or less neurasthœnics of the most pronounced type, form a large contingent of our degenerated generation. It is not without cause that it is called "the disease of the healthy" — of course one is "quite well," only just a little "nervous!"

Some, however, are thin and pale, with relaxed muscles, and other symptoms of a disturbed nervous system; and in a way they are better off than the former, as their wretched appearance proves the beginning of the struggle between their natural recuperative power and the irritant cause of their complaint. They are always sickly, which plainly proves that their vitality is at work in cleansing the internal



organisation, and we know that when this is going on there is no surplus to waste in bolstering up the limbs, etc. This was described in the "Hunger Cure." So that, before the healthy-looking nerve-sufferers can mend, they, too, must lose both flesh and colour; then the congested parts will recover their normal condition, and the circulation, becoming more regular, will bring about the desired recovery.

Hypochondria and hysteria, the epidemics of the so-called "educated" people, are "refined" but not imaginary. They are produced by a constant variation of symptoms and mental condition, but are not stamped by any very characteristic points.\*

The general deportment, and lines of weariness in the face, are the greatest proofs of the depression of mind and body. There is some absent-mindedness. The slightest external irritation acts very sharply, but not necessarily permanently, because of the rapid change of impression. The effects of hypochondria are varied. Added to irritability and loss of energy, together with lack of concentration, there are trying pains in the back, the chest, the stomach, etc., which naturally inspire the victim with the fear of kidney disease, consumption, cancer, etc. Mental disease is the result of nerve complaints, which, not having been understood or detected, have been neglected or wrongly treated.

Increased irritability of the sexual organs, proceeding from many causes, is a marked symptom of nerve weakness, and is described by the "Profession" as sexual neurasthœnia; it occurs among both men and women. It reaches its highest point with men in "Satyriasis," in women in "Nymphomania," and is often mistaken for physical health and strength, yet it is only the sign of extreme nerve irritability. Every excitement should rigorously be avoided, or the consequences may be serious, so that the utmost self-control in such matters must be insisted upon. The best "helps" to this war against the "flesh" is a mild water treatment, suitable open-air exercise, and the simplest of diet.

A word must be said on the peculiarity which makes nerve sufferers feel stronger during the day and evening than in the morning. In the morning they contemplate suicide, and at night could fell trees with comfort. This

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\* That is to say, that the symptoms of hysteria are not exclusively characteristic.

proves a latent feverish condition, a deceptive state of excitement, which will bring a reaction of weakness and weariness, as all fever increases towards evening and lessens in the morning, so that the nerve sufferer who has not realised his condition may recognise it in this symptom.

Dr. Lahmann, a celebrated specialist, makes some very interesting remarks on neurasthœnia in "The Journal of Science." They bring out certain points which may better enable parents and teachers to understand the care which must be bestowed on children and students.

Thus, Dr. Lahmann says:

"Neurasthœnia troubles children as well as adults, the rich and the poor. The question of overwork has been greatly discussed, and, as a matter of fact, the school curriculum is not really excessive, but, with the régime of schools and the carelessness shown in hygienic matters, the evil results of a mistaken system of education must inevitably be felt by boys and young men. That cannot be laid to the charge of the curriculum, nor can this be accused of bringing about chronic and acute diseases, scrofula, anæmia, caries, etc.; it is the manner in which our educational system is carried out that is largely responsible for neurasthœnia in children — we might call it the shock or fear system. The ridiculous threat of parents, as to "What the master will do when the lad gets to school," begins in the nursery, and though thrashing has been practically abolished, I am not sure that it was not preferable to the punishment task after school hours, and the prospective scolding awaiting the child at home. Under these conditions work means anxiety and misery. Then the lesson book is placed under the pillow, to be looked at early in the morning, "for fear of having forgotten." That feeling only subsides after the lesson, and begins again for the next day.

Those who remember such experiences, or gain sufficient youthful confidence to learn to understand children's feelings, cannot fail to grasp the pressure which must result in neurasthœnia in the growing lad. Then they are instilled with ambition; the difficulties of life are held before them, so that the "pleasure of life," which is their privilege, falls away. They are compared with their elders as if they could put themselves in the place of father or uncle, or, indeed, as if they even knew how they "grow up." As a result we note pale cheeks, loss of appetite, digestive disorders, etc., which

are nervous symptoms. Unfortunately, the educational system weakens its cause in the face of frequent child-suicides, yet the boy, who is urged to feel himself a fool, who is made to think that he will never succeed, and to fear the coming struggle or some future punishment, can hardly be blamed for willingly departing this life. It is to our shame that topsy-turvy nature should make the young tired of life.

Once the school days are over the faulty system works on unfavourably. Nature asserts its rights; the ill-regulated mind seeks pleasures bad for body and mind, to make up for the unhappy childhood. Many young men become the victims of such excesses, those who live on pay for their follies with the loss of nerve power. In this condition many have to go through severe university or other examinations, which they meet without courage, with "cotton-wool" brains, with pains without end; and after this strain, exhaustion is so great that they can struggle on no more!

Those who attain manhood carry the disease with them, unfitting them for commercial activity, although they do not constantly suffer from nervous disorders; some are satisfied with their middle-class circumstances. But subsequent attacks make such inroads on their constitutions, that any social or commercial reverses may drive them to suicide.

Women are not spared either. Tea and coffee parties, social gatherings in a vitiated atmosphere, in-door occupations, foolish fashions, careless hygiene, all produce anæmia and weak irritable nerves, which are increased by the usual domestic cares, anxiety for their children, or solitary life.

Servants and artisans, who for some trouble seek the doctor's aid, show signs of disordered nerves, especially with regard to the digestive functions. The reason is obvious. Where their forefathers had a good supply of vegetables, meat, or bacon, the poor of to-day live on bread and butter and tea, and indulge in beer, tobacco, and spirits. These are sufficient causes for "nerve ills."

This topsy-turvy diet affects rich and poor alike. Among the latter it has much to answer for in the way of nerves, therefore the disease can be fought by sensibly-chosen food and a radical change in the system of education.

The course of treatment naturally has almost as many aspects as the causes of neurasthœnia,\* and the recovery depends on the removal of the causes.

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\* These have recently been described here.

Those which result from overwork, privation, loss of vitality, require strengthening, reform in diet, water treatment and open air.

Over-feeding, luxurious living, self-indulgence, etc., is best cured by the so-called "Regenerative" treatment, a Kneipp or a Kuhne curative treatment.

If the trouble proceeds from drug poisons, morphia, mercury, arsenic, etc., it naturally demands a treatment different from that which proceeds from other causes. These are frequently all united to weaken the nervous system, so that, to be effective, the treatment must be quite altered.

Firstly, then, the cause must be enquired into, and the doctor must work, as in all other cases, according to the individualities (age, vitality, etc.,) of the patient. If the physical and mental training have been at fault, the doctor must prove a "reform" tutor. It is most difficult for the inexperienced to rightly judge or explain nerve troubles, so that self-cure is inadvisable and dangerous; and although the writer of this work has made it a duty to show, by the description of certain troubles, that medical aid may be unnecessary, many forms of neurasthœnia, and some other troubles, must be excepted from the list.

Besides a faulty training, hereditary or acquired ills may predispose to weak nerves. We have already shown that the first step to recovery is the recognition and removal of such causes. The sufferer cannot possibly do this, nor judge impartially of his condition, still less hit upon the correct treatment. Naturally nerve diseases often carry with them serious mental disturbances, brought about by spiritual influences, which, being encouraged, come very near mental disorder, so that they need, first and foremost, scientific and careful treatment.

The reader must have experienced the influence which the personality of a doctor exercises over his patient and his recovery. This must be accentuated in nervous cases, where the mind is more closely concerned. After all, the curative powers of hypnotism and magnetism depend entirely on the link of sympathy which exists between the operator (doctor) and the subject, and on the influence of the nerve current of the medical man over the nervous system of the sufferer. This brings about the reciprocity, the understanding of look, word, and sign, which work such wonders and inspire hope and courage.



And as home surroundings are often the most important "irritants," the removal of the nerve sufferer is one of the first steps to ensure recovery. Take him to country, mountain, seaside, or nursing home, according to pecuniary circumstances. In the nursing home we find the quickest recovery. The altered surroundings, the sympathetic friendly treatment, conscientious experienced nursing, and good pure air, will sooner effect a cure than home life, which is so often less than conducive to the rational treatment of nervous patients.

### 37. Preventions and Precautions in Epidemics.\*

"Epidemics are clearing storms, intended to sweep away the toxins which affect the population."

In their praiseworthy and constant endeavours to approach and better understand the nature of disease and epidemics, the collective sciences (medical, chemical, physical, etc.) found some tiny vegetable living atoms called "bacilli,"\*\* which are held to be the cause of infection.

In the chapter "Drug Treatment and its Drawbacks," I stated that the learned men were not agreed as to whether the bacillus is the outcome of epidemic or its cause. Those who believe the latter are called "contagionists" (who believe in infection); others, who accept the idea of predisposition, regarding contagion as the causative power, are individualists (i.e., standing alone, or pointing to individual disposition); lastly, there are the localists, who attribute the outbreak of the epidemic to local or temporary circumstances, such as marshy land, drains, tropical heat, etc.

We, as previously stated, know two factors:

Firstly, the causative power; secondly, individual predisposition. The former occur through touch and "conveyance" in contagious diseases (of bacilli, bacteria, contagious matter); and, as in the inhalation of miasma, predisposition is caused by the presence in the body of toxic substances, which obstruct the organism.\*\*\*

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\* See article on "Future Epidemics."

\*\* Bacilli (Latin, bacillum), little staff, really insect shaped like a tiny staff.

\*\*\* The receptive state for contagion is, as is seen here, the same as for a chill or any other illness — obstruction caused by the presence of toxins. These bring about general over-coddling (See "Hardening and Softening"), which increases the flow of mucus. (See "How to Protect Ourselves from

If one or other of these two causes are absent, there can be no epidemic or infection.

There are innumerable varieties of fungi which work internal ills and produce poisonous results, but whether the epidemic proceeds from them, or from chemical ferments or toxins, is immaterial. Given a healthy body, free from extraneous substances, in good working order, then any toxins which may have penetrated into its organism will naturally be expelled, or their removal will occasion little or no disturbance.\*

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disease.") This implies increased ferment through bacilli, just as grape juice, cider etc., is caused to ferment by the bacilli present in the yeast. The liquid must be solidified to decrease the ferment. This kills the fungi, which cannot resist sugar and food substances. The toxic substances amalgamated in the body, circulating freely, offer a perfect "nursery" for the development of bacilli. As these increase, so does the fermentation of the strengthened extraneous substances, thus making fever the introductory stage of all illnesses. The odour which proceeds from the fever patient is due to these objectionable substances; in infectious diseases and epidemics, the smell caused by the fungi or bacilli is added to the rest. The diphtheric patient emits a different odour from the one who has smallpox, and the man who has cholera yet a different one again.

\* To prove that the bacillus does not play the principal part in infection, Dr. von Pettenkofer made an experiment. It was in Munich, during the cholera epidemic of 1892; and on October 7th, in presence of witnesses, and avoiding any precautions which could destroy the bacilli, swallowed a so-called "Cholera-broth," of which one grain must have contained millions of the most dreaded koma bacilli, certainly many more than we "enjoy" when passing our unclean fingers over our lips! The acidity of the stomach, which the "great" Koch asserts destroys all bacilli, was made nil by a preliminary dose of carbonate of soda, in order to ensure the development of the bacilli.

After this "magic" drink, which the Professor said was like the purest water, he added: "*Fiat experimentum in corpore vili*," 'The experiment was made on a vile body.' I have the right to consider myself a vile body; for I am seventy-four years old. I have suffered for years from diabetes, have not a tooth left in my head, nor do I use my artificial set to chew my food, but only when I have to give lectures; also, I feel many of the burdens of old age. Even if I am mistaken, and this experiment proves fatal, I should not fear death, for it would not be an act of folly or suicide—I should die in the interest of science, like a soldier on the field of glory. Health and life are certainly great earthly goods, but not the highest. The man who aspires after greater things than the beasts must be ready to give up life and health for higher ideals."

Professor Pettenkofer's condition remained unchanged, although thousands of bacilli were present in his excrements. Independently of the fact that the Professor was affected by irritating toxins, and evident sensitiveness, not only did the bacillus refuse to achieve its object, and though it was present in the contents of the bowels, no sign of cholera poison could be found.

Since the world began, tiny vegetable atoms have lived and prospered; they circulate in every substance liable to chemical change, such as those extraneous ones which exist in us. But they are not responsible for the fact that human beings are themselves burdened with toxics, and are, through their own carelessness, their circumstances, their indifference and their laziness, ready for the reception and the increase of the said microbes.

These are taken in, in various ways, through the nose, the mouth, the pores, wounds, etc., but, for all that, the result is not always an infectious disease. Every object we touch contains such microbes.\*

The dust of the air, composed of dirt, vegetable and animal matter, contains endless micro-organisms. Every litre ( $1\frac{1}{2}$  pint) of air we breathe contains five to ten different kinds of fungi, which, however, are not all poisonous. Some

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\* Two Havanna doctors, Acosta and Grand-Rossi, examined a quantity of bank notes of the Havannese Bank. They found that, after circulating for a certain time, the microbes increased on the paper by 19,000. Among them were tuberculosis, diphtheria, typhus, scarlet-fever, smallpox, and other bacilli. Some were used to inoculate animals, which died. The habit of wetting the fingers with the tongue, when counting paper-money, must, under certain conditions, prove infections. So, dear, reader, when paying out hundreds or thousands of bank notes, beware! Never omit to wash after counting money or paper in business.

E. Seitz computed the number, vitality, and poisonous nature of bacteria found on clothes. They run as follows: Worn cotton stocking, 956 colonies; a worn woollen one, 712; a woollen glove, 33, unworn linen, 9 — after 8 days' wear, 23; in worn velvet, 26; unworn silk, 22; worn silk, 32 bacteria germs. All the experiments were made on a minute piece of each article, so that some idea of the extraordinary number may be imagined. The result of this is important, because micro-organisms (producers of illness) were rarely present, only the most minute vegetable organisms. Typhus bacilli were present in articles of clothing after 21 to 26 days, but the erysipelas microbe only subsisted 18 days; another staphylococcus pyogenes albus, a golden-coloured cork-shaped fungus, which is found in gatherings, abscesses etc., remained after 19 days; the cholera, on linen only one day; the spleen bacillus one year. The Editor found tuberculosis bacilli on two sweating phthisical (consumptive) patients in the linen placed over their chest. He prepared these in water, and injected this into the stomachs of guinea-pigs; neither of these animals, strongly predisposed, became infected, proving that tuberculosis cannot be carried in linen.

I must add that lemons and their juice are in many quarters recommended for treating diphtheria locally. Herr Laser tried to determine at what degree of concentration citric acid would kill the bacillus. This he found would take place in four minutes, with a solution containing 50<sup>0</sup>/<sub>0</sub> of acid; the presence of albumen is unimportant. The editor also recommends citric acid for diphtheria. A solution at 5<sup>0</sup>/<sub>0</sub> to 10<sup>0</sup>/<sub>0</sub> serves as a good gargle, or application to the affected part, and can be taken internally.

are useful, and even needful, such as the yeast fungus, for fermentation.

Our body is impregnated with micro-organisms by night and by day. They form a poison in our "juices," called ptomaine, which is eliminated when our natural functions are in a normal condition.

Even when epidemics do not prevail, bacilli are constantly at work, penetrating by every possible inlet, without producing epidemic illness. We may therefore conclude that the predisposition must be local and temporary,\* and we can rightly talk of times and places as immune. The soil bears strongly on this point, as will be shown later.

Most infectious diseases appear in epidemic form. Typhus fever, smallpox, measles, scarlet fever, diphtheria, nettle rash, hospital fever, shingles, influenza, milk fever, the infection of which shows itself in minute vegetable atoms, and passes from person to person, are alike subject to locality and season, independently of predisposition, in the same way as cholera, the plague, yellow fever, intermittent fever, dysentery, etc., are influenced by miasma and atmospheric influence, and tax the patient according to his strength.

The exceptions are syphilis,\*\* hydrophobia, and other diseases common to human beings and animals. These are not affected by season or locality. With some of these it has not yet been proved whether predisposition may be considered or not.

Professor Pettenkofer discovered that cholera and typhus infection is developed in drains, etc.; thence human beings are liable to be attacked. The same scientific man was the first to determine the fact that the infection occurs when the drain substance permeates the ground and escapes from that source.\*\*\*

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\* Diseases which are very prevalent at one season are termed epidemic. For years no cases of cholera occur, and nobody finds the bacillus. Then the epidemic suddenly appears; thousands fall ill; the bacillus is present in the ground, the air, even in the purest water. The disease increases, lessens, and disappears.

Infectious diseases, bound to localities, are termed endemic, miasmatic; cholera partakes of both, as influenced by place and season.

\*\* The author believes that the cancerous infection on a completely healthy human organism, i.e., free from toxins, must inevitably produce a cancer abscess. It must then be cured by local treatment, because it is itself always localised, and does not necessarily affect the rest of the body. Syphilis is quite different, for it attacks the body generally.

\*\*\* The author can confirm this, since he stayed in South America. In



Danger decreases as soon as the water rises. Where the ground is always moist, or entirely dry, as is the case with clay and rocky soils respectively, there is no evaporation and consequently no epidemic.

Many attempts have been made to prove Pettenkofer wrong, but without effect. Where, for instance, in a special place built on rock, cholera appeared, it was immediately discovered that there were fissures in the ground containing porous soil.

The air in every building passes upwards from the soil and goes out at the top, consequently the worse the quality of the soil and the less sanitary the arrangements the more frequently will illness occur in the family; the infection affects the inhabitants to a more or less degree according to their dispositions. Porous walls, and especially badly-connected drain pipes, are the greater sources of danger.

In every epidemic the specific fungus is so widely spread, that it would seem obvious that all within its reach, or holding communication with the sick, would be equally attacked. But it is not so, only a certain percentage of infected people really fall ill, and a smaller percentage die from undergoing wrong treatment. This results from what has been repeatedly explained, viz., a more healthy state of internal organism and comparative freedom from toxins. The bacillus is destroyed by the action of the gastric juices, and cannot reach the intestines, where it works most havoc.\* Even there its action is limited; in fact, in cholera and typhus, it acts in the small intestine. But enough of all this!

The best preventive is a healthy body. We cannot prevent changes of atmosphere any more than we can alter the unhealthy soil on which our house may be built, but we can keep our bodies free from predisposition by living a clean and moderate life — that does lie in our hands. For the individual disposition is really determined by a chemical process. Any change in the normal condition is through some

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some districts of Paraguay, intermittent (climatic, malarial) fever prevailed, induced by marshes. As soon as the drought left the marshes empty, the disease was on the increase, owing, without a doubt, to the atomic life contained in the soil.

\* In spite of Pettenkofer's experiment, which showed the presence of the bacillus in the intestine without any signs of cholera appearing, it is not yet proved that this specific bacillus does not do its worst after it has reached that part.

mistaken step, which must be rectified before it results in a chronically diseased one.

In epidemics this chronic tendency becomes acute, assumes the characteristics of the prevailing disease, and works away from what it originally was.

We must harden our constitutions. The latest cholera epidemics proved beyond doubt the helplessness of medical science; there seemed to be nothing to administer but quantities of opiates,\* and to disinfect the streets, houses, closets, canals, sewers, men, animals, and clothing. This was done to such effect in Hamburg, that even the sparrow flew away to avoid the smell. All birds left the most infected part of the town — how could human beings recover under such conditions! Every investigation possible was made. When the river Elbe was made responsible for the epidemic, watering the streets from that source was prohibited. Absurd steps were taken, because the nature of the disease, being unknown, the cause was sought for everywhere but in the right direction. In this case it was one of those cleansing storms which predisposed, slummy, overcrowded Hamburg needed, and which fulfilled all the conditions favourable to epidemics as explained by Pettenkofer. To this was added the intensely hot summer (1892), the critical point in this case being local and seasonable circumstances meeting with individual "receptiveness."

But science knows little or nothing of such matters. It rides the bacillus hobby-horse to the terror of the population; it uses poisons against an enemy whose power and origin are hidden mysteries. Instead of quieting the public, and instructing them as to the nature of an epidemic, be it called what it may, and however it may break out, science frightens the people with loud cries of infection and contagion.

This was the case in the year of grace A. D. 1892, when the unfortunate inhabitants of Hamburg, frightened away from their homes, were looked upon as dangerous, and could find no districts or hotels wherein to stay awhile; or, when lucky enough to be taken in, were disinfected and

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\* They only tend to constipate, and that is obviously the worst thing to do, although doctors rarely achieve this purpose in cholera. It is the contrary, as we know, which must be attempted, to ensure the needful cleansing of the body. Hence the so-called dry cholera, where all the liquid concentrates in the body, is far more dangerous than any other form.

shut up in hospitals by way of quarantine. All this owing to the ignorance of the profession; then, aided by the authorities, they imposed the epidemic penalty, "The law of inoculation." This implies a possible attack on private property, considerations as to commercial relations, certain limitations to personal liberty! At any rate this is the only way in which we can describe the enforcement of disinfection by prescribed chemicals, forcible reorganisation of private households, isolation, enforced medical treatment, &c.

In times of epidemic, the individual's duty is to try and keep well by living in such a way as to ensure health; by keeping the digestive functions and the bowels in a normal condition, for obviously, in such times, food and drink indubitably contain the bacillus, even the "purest" water. But healthy gastric juices will destroy it, as we have repeatedly observed. Normal habits, no excesses of any description, alternate work and repose, much open-air exercise, regular sleep in well-ventilated rooms, simple food\* and cleanliness, are the best preventives, the greatest safeguard against the propagation of bacilli.

If the system is not in a satisfactory condition, the body can be freed from toxin by heating exercise to sweating point, friction, baths, vapour, massage, and hygienic gymnastics. If the digestion is troublesome, put a compress round the body on going to bed, or take a "trunk" bath 72° to 77° F. for 10—15 minutes, and go to bed without drying the body. If there is shivering, have a bed vapour bath. (See "Various forms of Baths," etc.)

In the "General Encyclopædia of Health" (Vol. III. p. 241), edited by Dr. Albert Eulenberg, Professor of the Greifswald University; Dr. Eichhorst, of Göttingen, says: "Those persons who are subject to stomach-catarrh, or who frequently take aperients, or who neglect ordinary cases of diarrhœa, are susceptible during cholera epidemics. It is especially dangerous for those weakened by protracted illness, the immunity resulting from certain temporary complaints would not be theirs. Women expecting child-birth are frequently attacked, and death ensues after miscarriage; excitement is

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\* Do not fear to eat fruit during cholera times, it may be taken either raw or stewed, in spite of the "Profession!" Vegetables, salad, and all such articles, can only help matters, and regulate the bowels without bringing about the dreaded diarrhœa.

harmful, and the exaggerated fear of infection is especially fatal.

Kühne's theory, "He who fears illness is already ill," is correct. The body attacked with toxin has a bad influence on the mind. *Sana mens in sano corpore*. i.e., only a sound mind flourishes in a sound body. Naturally, in epidemics, the abnormal physical condition acts upon the disposition, making it receptive; in a state of fear the albumen is increased, which can be proved by the fact that a man in a state of fear has an offensive smell. Those whose duties bring them into contact with infectious patients must exercise all their self-control, to banish fear and revulsion. Think of all the doctors and nurses, who, day by day are exposed to infection, and comparatively rarely become victims themselves! Let us not even believe in the possibility of infection, but keep up a cheerful spirit, for even this auto-suggestion may, even with predisposition, prevent an attack. Where any one has to nurse a patient, the most regular habits must be observed. An occasional vapour bath is advisable, and exercise in open air and sunshine very beneficial.

A second *sine qua non* is the most absolute necessity of scrupulous cleanliness in every part of the dwelling and its surroundings; every dusty, dirty spot increases the fungi, the same effect is caused by vitiated air. Every cholera and other epidemic has proved that they are favoured by uncleanliness. "Fresh air," says Professor Biermer, "is the best disinfectant." Open door and windows form a certain guarantee against infection. Professor Dr. Gustav Jäger says that bacilli congregate in evil-smelling liquids. The parasites are conveyed by wind and water, increasing wherever there is a bad smell. It is well known among the people, and those engaged in fermentation, such as brewers, that if the malodorous menstrual smell penetrates to fermenting matters, it produces force—or bacteria fermentation.

Rational ventilation is the best disinfectant, and the partial disinfecting of streets, houses and closets is worse than none.

Professor Nägeli, of Munich, adds:

"Cholera, dysentery, and typhoid bacilli, which find their way into cesspools do not long retain their specific nature, they are entirely destroyed or change their character altogether. Therefore incomplete disinfection, which does not



actually destroy the germs, encourages their increase and activity, and retains them in the shape of disease producers. In other words, it is equivalent with preserving the infectious matter, which will attack human beings as soon as the insufficient disinfectant has lost its temporary effect."

Soiled clothes should not be allowed to remain unwashed, we know the terrible quantity of infectious matter they harbour. If washing is impossible, they must be hung out in the air and sun. This will prove effective, since the bacillus only prospers in bad smells and moisture. Where the soil is porous, all the floors and walls of the cellars and ground floors must be most hermetically cemented, for sewage air rises inevitably; coarse sand and gravel mixed form a dangerous soil.

The heated rooms are those which form a shaft of communication with the soil; in epidemics, therefore, it is wiser to keep from having fires, and only to maintain the one in the kitchen as long as is needful. At night, if the room is even moderately heated, it is advisable to sleep with the window open.

If the cesspools are not distant from the house, and easily changed, they should be carefully cemented, hermetically closed, and cleaned frequently.

Everybody then, whether individuals or authoritative bodies, should enforce and maintain cleanliness as a perpetual precaution and preventive, without waiting till the outbreak occurs — internal and external cleanliness. Every one can help to make this practice a general one, and to spread the indubitable fact, that cleanliness, and cleanliness alone, is the best and only means of suppressing epidemics.

### 38. The Care of the Sick.

It is not only a humanitarian duty to nurse the sick in an intelligent manner. Not only does it comfort and relieve the patient to be helped and encouraged in every possible way, but it is important for the course and cure of the disease.

Everybody is not equally suited to the task. Besides firmness, endurance, patience, gentleness, conscientiousness, etc., which must all characterise the nurse, cheerful ways and special capabilities should be his or hers. This noble

mission has ever been suited to woman: she works splendidly in times of war and peace. Her unselfishness, devotion, and gentle touch are, indeed, made as it were for this profession -- a truly complex one, but one which brings forth all that is best in woman. She is a born doctor, the embodiment of the Good Samaritan.

This chapter is devoted to woman, wife and mother. I fain would enable her to so treat her dear ones, in times of sickness, that she may bring the illness to a happy termination.

The requirements for making a healthy bed room are the same as for a living room, for the invalid who has to remain in bed through sickness and convalescence the bed room practically becomes the living room. For the strong, dry, airy, sunny apartments are imperative, how much more so for the sick. So the invalid should have the most favourably situated room; his or her recovery is of moment to the whole family, so never mind how the others fare for a time.

Given the airiest and roomiest apartment, it must neither be too directly facing north, nor should the sun pour in through the hottest part of the day, indeed, a south-westerly aspect is the most favourable.

If the eyes are painful the light must be modified; otherwise, light is a health-factor, and darkness often harmfully depressing. Obscurity favours microbes — but repetition of what I have already stated is useless.

The sick room must be quiet and peaceful; loud noises anywhere in the house should be nil, and strictly forbidden; outdoor and heavy traffic is bad for the patient, but cannot always be avoided. The two points which can and must be insisted upon are — light with air, and the most scrupulous cleanliness. An upper and a lower sash should be open throughout the day, with complete airing at intervals: for this purpose the patient must be covered up to the chin while there is a draught. This ventilation is often painfully neglected; the excrements are not immediately put away; the bad air resulting from breathing, lamp and firelight, etc., is given no outlet; old compresses, bandages, ointments, food, all add to the impure atmosphere, till it becomes poisonous even for a healthy person. Then, if those who nurse the patient sicken, it is put down to — bacilli! All these points must be considered. Nothing must be cooked in the sick room, all

the vessels should be emptied and rinsed, flowers even are not advisable, and strong-smelling disinfectants objectionable. Air, fresh air, and more fresh air — nothing favours recovery so much; without it, illness might be suppressed but never cured. The stale air in dark corners of the apartment can be exhausted by means of a wet umbrella stood open at intervals, after having wiped the dust away with a wet cloth.

Well - constructed stoves provide means of ventilation, too; the warm air penetrates the chimney, and draws in the air of the room. Modern windows, with separately moveable frames, and wall ventilators, all help to purify the atmosphere without even attracting the notice of the patient.

Should any circumstance forbid an open window in the sick room itself, it may be opened in the adjoining apartment, and the patient will be benefited by the passage of air through the door of communication.

The room, or rather the floor, must be wiped with a damp cloth in the morning, especially under the various articles of furniture. All the dust may be removed by the same means, which is more effective, and prevents a spreading of dust atoms, for these naturally carry microbes. For this reason upholstered furniture should be avoided in the sick room, as well as antimacassars, carpets, hangings, etc. A bed with a foot mat, the strictly-necessary furniture, a night table, a screen, a few chairs, and a simple couch, are all that is required.

The temperature of this apartment must not exceed: 58° to 62° or 64° F. Better for it to be too low than too high. A couple of degrees less would suffice for the patient in bed, but it is as well to have it as near 60° as possible, in case of emergency, such as the necessary baring of parts of the body for washing, packing, etc. Fever patients can bear a temperature as low as 50°, but it may exceed 65° by one or two degrees, where the illness causes feelings of chilliness or shivering.

To lessen the dry air produced by a fire, and which is so irritating for the throat, and all diseases of the breathing organs, a basinfull of water may be kept slightly steaming throughout day and night.

The bed must be placed so that one can "get at it" from all sides. If space is insufficient only, the head-piece should touch the wall, care having been taken to let the

light fall upon it from behind or from the side; it must be at a reasonable distance from stove and window; iron frames are best. (See the chapter, "How must we Sleep?") Horsehair mattresses and pillows are preferable, with blankets according to the season; curtains and hangings are no good, they only keep off air. If there is a straw palliasse, it must frequently be changed, but beware most of all of feather beds, which are equal to murder. Pray, dear reader, carefully note this in the above-mentioned chapter. It is terrible to see a patient on a feather bed, all huddled up and buried, with the head in a great hole. The windows may be shut, a large fire in the grate, on the table rows of poisonous drugs, etc., in fact, an atmosphere like unto a sewer. How can the patient wonder that he gets worse! Ah, victim of the "Profession," no wonder! Rid yourself of the doctors, throw the physic to the dogs, and leave the window open. If this has brought you into a perspiration, get some one to rub you down — have the feather bed and eiderdown removed, and wrap yourself in a blanket — that is the first step on the road of recovery.

It is best not to lie so as to see all that goes on in the room. This can be avoided by means of a screen, which also keeps off the draught, when the window is open at the top the current of air is often strongly felt.

When a top window is opened, the hot air of the room rises and escapes, the heavier cold air enters and falls almost vertically,\* so that the patient needs a screen to save him from the keenness of the air.

Look to the patient's comfort, so that nothing may harm, oppress, or worry. When the bed is made, avoid all creases in the sheets, and carefully remove any bread crumbs — such details help to prevent bed sores.

Bed clothes and body linen require airing several hours before use. Remove the nightgown upwards, pulling it gently and quickly over the head to release the arms. To put another one on, begin by slipping the arms in, then take it over the head and pull it carefully on.

During convalescence the bed should be put straight at night, whilst the patient reclines on a couch or in a comfortable chair. If only one nurse is in attendance, one hand

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\* According to physical laws, we know that the hot air rises, being lighter than the cold which sinks. It is hotter near the ceiling in a heated room; if it is inadvisable to open a lower sash as well as an upper one in a sick room, the latter should be kept open.



is placed under the patient as he sits, the other round his shoulders, he clasping hands round the attendant's neck. Thus the weight is more equally distributed between the arms and the trunk of the body. In this manner it is easy to move a person a short distance.

To avoid bed sores, the threatened parts of the body which show red marks (shoulder blade, hips, heels) may be

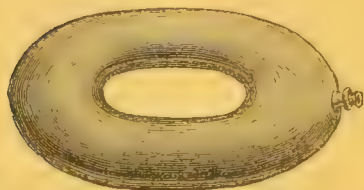


Fig. 17.

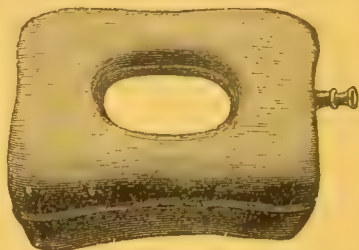


Fig. 18.

supported on an air cushion (Figs. 17 and 18) or a water-pillow. (Fig. 19.) The painful parts are relieved of their weight, strict cleanliness, of course, being even more imperative than ever. Sometimes a side posture has to be kept. Then draw the sheets quite free from creases, fastening the sides with safety pins, and draw the nightgown quite smooth. I have already mentioned the necessity for removing bread crumbs, which may cause gatherings. "Little causes have important results." In the matter of excrements, the most scrupulous cleanliness must be the order of the day.



Fig. 19.

All receptacles must be emptied as soon as used, and cleaned with boiling water. In cases of bed wetting, an indiarubber sheet must be placed on the mattress; for patients who cannot be moved, special vessels (bed-pans) are made (Figs. 20, 21) in different shapes, and are indispensable, just as are the urine pans. Fig. 22 represents the utensil suitable for a man; Fig. 23 that required by women.

Near the bed place a small table (night table), with a glass of water, a spittoon, a bell, etc., which the patient can use and replace for himself. If there is a mirror in the room, it should be hung where the invalid is not re-

flected in it. Experience shows that when he can see himself in the glass, over-excitement has often resulted with detrimental effect.

Useless, loud, or continuous conversation, must be tabooed. Visitors, in the shape of "kind neighbours," cousins, and other so-called inquisitive or sympathetic people, are best kept away, unless the visits are few and very short, for all these things and people tend to excite the patient. Avoid shaking the room, or even the bed of the patient; let there be no noise, no slamming, no creaking of windows — these things annoy a sound-nerved individual, and are distracting to a weak one.



Fig. 20.

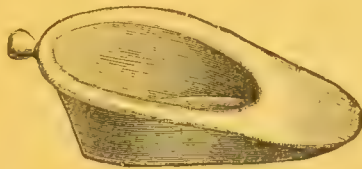


Fig. 21.

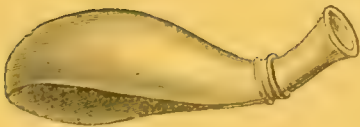


Fig. 22.

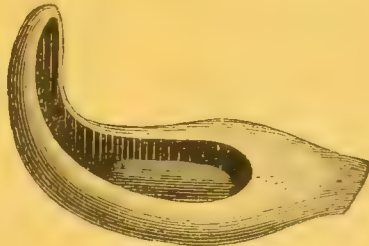


Fig. 23.

On the other hand, do not make the patient suspicious, let everything be open and aboveboard. Mysterious proceedings will only create excitement, therefore neither whisper nor creep about, merely treat the patient with kindness and firmness. Face and hands must be washed every morning with soap and lukewarm water, the hair must be brushed and the teeth cleaned.

I cannot refrain from quoting here some remarks of Miss Florence Nightingale, a woman who rendered great services in nursing matters. The paragraph occurs in the well-known work of Billroth, entitled "Private and Hospital Nursing:"

"Nursing may be learnt from a book to a certain extent, but the art of thinking of everything is a very

different matter. Responsibility, whether weighty or trifling, is but little understood by the average man and woman. In both serious and minor catastrophes people are often to blame because they have not recognised their duty or their responsibility, and obviously, as it is not enough to attend to everything oneself, we must also make sure that others will do their part, and that no one will do the wrong thing either through ignorance or malice. A needless and aggravating noise does much harm to a patient.

“The first thing to observe is to avoid waking the patient either purposely or accidentally.

“Once disturbed, he cannot go to sleep again, and though it seems strange, it is nevertheless intelligible that the patient who is awakened after some hours’ sleep has less difficulty in going to sleep than one who has slept only a few minutes.

“A healthy person who sleeps by day cannot sleep well at night, but the reverse is the case with the sick — the more they are allowed to sleep the longer they remain asleep.

“Whispered conversations are most trying, as the patient cannot but make efforts to hear. It is also injurious to him for people to walk on tiptoe, or to alter their voices; it is far better to speak naturally, and even loud.

“There are nurses who cannot shut the door quietly, or who open it needlessly, because they have not thought of the things they might bring in at one time.

“I have seen terror depicted on the face of a patient every time the nurse came in and kicked the coal scuttle.

“A thoughtful nurse will see that neither doors nor windows rattle, and that blinds do not flap. This must be specially attended to before the patient is left alone for the night. It is well to stand opposite the patient, to save him the needless exertion of turning his head, for everyone instinctively turns towards the speaker, yet as by standing one is apt to make the invalid look upwards, it is preferable to sit down and avoid all gesticulation.

“Never address your patient suddenly, and do not excite his curiosity. Neither interrupt him when he speaks, nor take the words out of his mouth. No one can imagine the effort that it is to a convalescent to stand for a few moments in order to listen. Everything brought into the room when once the patient is settled for the night tends to drive away

sleep, and if he is finally roused, a sleepless night will certainly follow.

"Again, never lean against the bed, nor sit upon it, nor jerk it, for to do so is unbearable. Verbal orders must be given with decision and tact, and your patient must never fancy that there is any uncertainty about the most trifling matter — you must keep any hesitation to yourself. People who cannot help thinking aloud, and arguing for and against every detail, are unsuited to be nurses.

"Indecision is a terror to a patient; in fact, when those around him hesitate, he exerts himself to the utmost to decide for himself.

"When you enter or leave a sick room, do it promptly and quietly. Never startle your patient, nor keep him waiting; do everything leisurely and avoid hurry. Those who exercise self-control will best find the happy medium.

"My opinion is that if a patient is incapable of reading for himself, he will not bear to be read to; but if reading aloud is necessary, let it be slow, for it is a mistake to think that it does not tire him if one hurries to the end and arrives breathless.

"It is agony to the patient if the reader is absent-minded, stops, and makes it evident that some part has been skipped.

"Those who have been ill themselves know best how to sympathise with the nervous condition of one who has to remain between the same walls, with the same surroundings, in the limited space of one or two rooms.

"I shall never forget the pleasure a bunch of flowers proved to such invalids, nor how much the gift of some field flowers hastened my own recovery.

"The patient finds it difficult to realise why melancholy thoughts trouble him, and why it is so impossible to cast them off and be cheerful.

"Such are the effects of illness, that a man might as well try to move his broken leg as to succeed in changing his thoughts without the help of others. This mental incapacity is the characteristic of the one who suffers from bodily disease, just as the inability to move a limb paralyses the crippled man.

"So that it is not enough to provide food and drink for the patient, the nerve sufferer must be cheered with flowers or pleasant things. Light is agreeable in itself. This is proved by the longing for dawn which is manifest in sick persons,



and by the fact that their spirits rise as soon as they begin to distinguish objects around them.

"Further, I would observe that we healthy ones are all carrying on some occupation, excepting perhaps some dainty ladies, whose nervous system, for all that, is no sounder than that of the invalid. As we do not realise how far that saves us from boredom, we cannot imagine how much the deprivation of the same affects a patient.

"Some needlework, a little writing or sketching, once the patient is strong enough, would be most beneficial. This sort of thing can hardly be learnt, yet it is sometimes obvious that it is the only occupation possible to the patient.

"It is therefore important to be on the look-out, and offer him some change of occupation or thought. This must be prudently regulated, or excitement will ensue.

"Many sufferers find it impossible to take nourishment before 11 o'clock in the morning, even when they are absolutely exhausted; but they should be given a spoonful of beef tea, soup, milk with egg beaten up in it, every hour, to prepare them for the better enjoyment of more nourishing food.\*

"If the nurse is ordered to give restoratives by the cupful, and the digestion is too weak, let her give it in tablespoonsfuls, every hour, or in teaspoonfuls every quarter-of-an-hour.

"Many patients cannot swallow, owing to the weakness of their nerves; this would be increased by making a sudden call upon their strength. If their food is not ready at the right moment, they may be unable to take it for some considerable time, perhaps two hours or more. In chronic illnesses it is specially imperative to be ready at the time when the patient can eat, as well as the moment at which he is weakest — this may vary day by day. Observation, perspicacity, and perseverance, are virtues which keep patients alive more successfully than any one knows. One of the worst results of hunger is sleeplessness, for sick people generally sleep relatively to the amount they eat.

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\* I have quoted the latter as they stand, although they are not correct according to the principles of diet. It only increases suffering to make the patient take food when he does not naturally crave for it; if his appetite is nil, let him wait till he asks for food. The body needs all its strength in its struggle with irritants, and the power of digestion is lacking. This dictate of nature should be strictly observed. The authoress is affected by dogmas of "science," but it is only the thought of the wonderful services she rendered which prevents me from striking out anything Miss Nightingale has written. (The Author.)

"The way to make an invalid sick of food is to leave by his side what he refused at a former meal, in the hope that he will eat it in the interval. The correct plan is to serve a meal punctually, and to remove it when finished or rejected.

"The less he is disturbed the quicker will he finish his food; and if he is obliged to be fed, the patient should neither talk nor be spoken to, least of all about the food.

"Never pour anything out of the cup into the saucer, but keep everything quite clean. It is so wearisome, when lifting the cup to one's lips, to have to hold the saucer as well, for fear of soiling the bed-clothes."

If all the precepts of Miss Nightingale, and my suggestions, are carried out, nurses may flatter themselves that they will have largely contributed to their patient's convalescence, for the real Samaritan helps the sufferer on the road to recovery.

### 39. Sick Room Fare.

In many illnesses good bills of fare are more useful than Latin prescriptions, all treating of mixtures, plasters, ointments, etc. — Dr. Joseph Wiel.

We have touched upon the various foods which best suit the body, and enumerated those which are most likely to produce bone, muscle, nerves, blood and juices, these all working towards the better condition of circulation, breathing, elimination, etc.

It is, however, even more important to suitably nourish the organism during ill-health, especially when the complaint itself results from mistaken diet. Even the "Profession" has been known to say that the kitchen is of more importance than the pharmacy, and many patients simply receive strict dietary orders for the cure of such chronic ailments as obesity, diabetes, etc. Unfortunately they do not yet understand the art of feeding, which I have already described, inasmuch that they treat the body as a chemical retort, without due consideration for the principles of nourishment. This results in the prescription of articles which do not contain in sufficient quantity the substances which should best assimilate, viz., albumen, fat, and water.

In illnesses which quickly run through their course science still preaches "Meat." The weaker the patient the

stronger the wine or extract must be; even persons at the point of death are sustained with champagne, either in the form of drink or injection, as if, forsooth, it might give them courage to pass into a "better" world. Oh, ye gods of science! And then people wonder at high temperature and rapid pulse. It is carbo-hydrates, not albumen, which support the human and animal organism; every vegetable product containing this substance does so in far larger quantity than does meat.

Albumen could only be extracted in a retort from such substances which contained it in conditions favouring elimination. It is one of the laws of chemistry. Animal bodies may yield much albumen, although built up largely of carbon, chloral hydrates, water, etc., and comparatively little albumen. That is a physiological principle. The proof lies in the fact that animals who live exclusively on the produce of the vegetable world give a rich supply of albumen.

Pure beef tea, without vegetable accessories, contains therefore no carbo-hydrates, and has therefore not so much nutritive value as the thinnest "potato" soup; meat broth contains substances injurious to the patient, and irritates the organism. Doctors say it is strengthening. After the spurious excitement produced comes exhaustion and weariness, but then the doctor says nothing, or he orders more strengthening food, wine, etc., and so it goes on until vitality or disease conquers. But enough of these far-sighted "Professionals." The Natural Curative Treatment follows quite a different line, doing away with meat altogether in some cases, or giving it, in others, with vegetable food. Under no condition whatever does it form an exclusive article, as it does with allopathists in catarrh of the stomach, and the Banting cure.

The great thing to avoid is forcing the patient to eat when he does not want to; and though he rarely evinces any appetite, nurses consider it one of their highest duties to tempt their charge. The undesired weight increases fever; the lightest food proves indigestible, thus bringing all the patient's strength to fight against the "enemy," in the effort to get rid of the irritating substance. All this rather paralyses the functions for a time, and hence the lack of appetite. In such a condition food must be detrimental, and will eventually weaken the patient to such an extent, that his vitality will not remain sufficiently active to carry out all the desirable and natural processes of elimination.

The patient often fancies particular things. It is not unreasonable to give in to such desires, for I have known people who have, as it were, "eaten themselves" well, with such things as pickles, fruit, etc. The only desirable plan is to make sure that the fancied article shall be taken in moderation.

If it agrees with the invalid, the fact proves a return to one's natural instincts, and gradually the amount of the particular article may be increased.

Give very little food in fever and inflammation, since, as I have just said, the digestion is impaired, owing to the non-co-operation of the gastric juices. Thirst then prevails, and water (fresh) quenches it best, but it must be sipped. Sweetened water is not so efficacious, as sugar is heating, but lemonade and acids generally do good.

If hunger is evinced after the lapse of fever, the first meal should consist of a water soup with soaked bread. In times of fever, avoid flour and like substances; the lack of salivation, by means of which these are usually assimilated, will prevent the proper action. Milk soups are excellent, as well as those prepared from fruit — apples, pears, plums, cherries, bilberries, raspberries and cranberries. By way of change, serve cold courses of strawberries, plums, and some of the above; also dry or fresh fruit compotes, without much sugar. After this, gruel, barley water, semolina, rice, and other articles, cooked with milk or fruit.

If convalescence runs smoothly, good vegetables, prepared with butter and salt, mashed or boiled potatoes, and lean veal, mutton, or beef, may be given; other things suitable at this stage are game, fowl, fish, lean raw ham, mildly-seasoned sausage, boiled eggs. These all help to vary the bill of fare. The bread should be wheaten, stale or toasted.

In short, observe the rules given in the three Chapters on this subject, in the first part of this book. They apply to the healthy as well as to the sick. Remember that nothing hinders recovery so much as so-called strengthening food, meat, wine, beer, extracts of meat, etc. Only digestible foods are strengthening, substances which our body assimilates and eliminates; not, certainly, whatever we eat. Let the food at all times be clean, plain, and well-prepared. Clean, pure food makes pure blood, pure juices and strong nerves, and the nerves are the upholders of vitality and strength.\*

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\* See "Unseasoned Fare" and "Mixed Fare."



## 40. Bruised Wheatbread and its Meaning. (Triticumina.)

Bread, the product of wheat, has always and everywhere been held to be the staff of life, and there can be no doubt concerning its nourishing qualities. It may be termed not only the staff of life, but the fundamental principle of the development of culture, and the spring of everything. It was only after the wise man grasped the meaning and the value of the nutritive properties of all corn and wheat foods, and so turned them to use for making bread, that he learnt the systematic cultivation of those substances to make them produce his principal article of food. Wildernesses were converted into fruitful land, and agriculture became a profession. It was bread which suggested cultivation, which gave man power over the world.

Naturally, since our "daily bread" plays such a mighty part in our food, it follows that it needs such preparing as will best suit it to our digestion and our organism, and besides that point there is another to consider.

We find in the husks of most cereals all those substances containing building-up matter which most closely suit our organism and its functions, but we must so go to work, that those cereals which we turn to bread in a form most assimilative to our nature may not lose any of their attributes in the process. Only material prepared according to such dictates deserves the name of bread. Then it really is a nutritive substance, as intended by nature; just as she provided the so-called "bread-fruit," which combines all the substances required for nourishment, and is capable, in times of need, of sustaining the human being without the help of other things. Any preparation obtained by other means, viz., by dividing or removing any fraction of nutritious material, will prove not only less satisfactory, but must result in a "fabrication," which, in the end, will impair the human organism.

It can no longer claim to be a complete form of nourishment in itself, but will simply, after the fashion of other articles, occupy one step on the scale of food stuffs. Nothing can, however, replace it, and its place cannot be filled by the incomplete nourishment provided by a substitute for bread. If we live on this, we must suffer either mentally or

physically, sooner or later. Intended as it was to be the main article of food, bread must really prove to hold the first place in our daily meals, since the nutritive power of other foods can only work for good by assimilation with bread.

As prepared by most bakers now-a-days, it does not answer the requirements in any way. This would be "bread," made from fine meal, or flour of doubtful quality, stands very low in the scale of desirable substances, is not particularly palatable, and, consequently, is the source of many ills.

We have enumerated the possibilities of complaints arising from faulty nourishment; and bread which is not made on dietary principles seriously affects the digestion; apart from the way in which it is made, the many "newly patented flours" are chief offenders.

Several cereals — wheat, rye, etc. — are used to make bread. The grains are ground between millstones, and then sifted; in this way the husks are removed. Researches have proved that the food stuffs are not equally distributed. The meal produced by the white internal part contains "starch;"\* perhaps a fifth of gluten belongs to the albumen, which nourishes and warms our body. The blood and tissue-forming stuffs, as well as the salt, which sustain our nerves, brains and bones, are mostly situated in the cells of the husks, and these are totally lost in the preparation of ordinary flour, thanks to the fanning or sifting process. The husk contains 15 % gluten, 54 % nitrogenous stuffs, and only 10 % inter-cellular threads. The latter, though not nourishing, is far from useless, since it automatically, as it were, reacts on the bowels, aiding digestion and promoting action, and induces activity in the gastric juices.

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\* Starch produces cerealine, a good "fermenter" which, in its turn, produces grape sugar. On this depends the manufacture of our bread. The so-called yeast is a tiny fungus, which, with the help of carbonic acid, changes the sugar of the dough into alcohol. The carbonic acid "works" the dough, and, unable as it is to escape, makes it rise. The great heat of the oven destroys the fungi, extracts the acid and alcohol, the loaf blisters, as it were, and produces the crumb round which a hard crust forms. The latter contains a good deal of starch, is lighter of digestion than the crumb, which, besides gluten, holds a considerable quantity of pure starch.

The crust should be neither too light nor too dark; the bread must have no cracks — as they say in the Rhineland, "the baker's wife must not run away" — and it must smell sweet. The crumb should be fairly elastic and light; i.e., if pressed with the finger, the crumb should immediately resume its shape.

In ordinary flour making, the germ or embryo found outside the husk, which contains the natural fermenting juice, is destroyed.

It is not in my province to enumerate all the cereals, and what they lose in preparation — the "Profession" must see to it, and have already done so. I will only mention that the farmer so little knows the value of the husks, that he feeds his animals with the same.

In the beginning of the 19th century, Professor Sylvester Graham, a North American, set forth the remark before mentioned, as to the worthlessness of bread made in this fashion. He prescribed for his patients wholemeal bread, which, together with other substances, resulted in many cures, mostly among those who had been given up by doctors. The wonderfully healing effect on the intestines of this proceeding, induced doctors and others to make use of what soon came to be known all over the world as Graham's bread.

In spite of effect and appreciation, however, it was long before this article became marketable, possibly owing to the apparent difficulty in giving that preparation an universally pleasing taste.

There is in many parts of Germany a ryemeal bread (pumpernickel). Though made of wholemeal, it is not digested by everybody, owing to an admixture of a leaven. Scientific attempts to substitute yeast for the former has effected some improvement.\*

But pumpernickel is not all that it might be, so that its nutritive powers are insufficient, and its beneficial influence on the digestive organs limited.

To obtain perfect, hygienic, normal bread, it requires wholemeal, water and air — fermentation alters the substances, disturbs them, as a rotting process would do, only ending when the heat has destroyed the fungi.

But no perfect result has yet been obtained, without fermentation, which could fulfil all the before-named require-

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\* See Dr. Prausnitz's "Weekly Medical Journal," of Munich 4th, 1893. The Editor, together with Dr. Menicanti, of the Physiological Institute at the University of Munich, made experiments to discover the relative results of bread made with and without yeast in the human intestines: also the different effects of wheat and rye, of ordinary flour and wholemeal flour. The use of yeast proved decidedly superior. Bread made from equal quantities of meal and yeast proved wheat preferable; that made with the two grains mixed hap-hazard was nearly as satisfactory as wheat bread. As to wholemeal, its effects seem to have been exaggerated.

ments. There is good Graham bread, excellent wheat bread, far preferable to the ordinary article, yet it still leaves much to be desired. The secret of obtaining good light crumb with ferment has not been discovered.

Many bakers omit the yeast, leaving the dough to ferment naturally by allowing it to rise by means of the warmth; but this rising does not preclude the fungi which are brought to life by the internal fermentation of other foods, which we then cannot enjoy.

Herr Carlotto Schultz, a great authority on diet as dictated by nature, writes as follows, in his "Vegetarian Cookery Book":

"Perfectly nourishing and palatable bread can only be produced by grinding the meal every time bread is made,\* using ears which have been sun dried, and entirely freed from all dusty, stale matter. As it is not generally possible to obtain such a preparation from the millers, it is advisable to do it oneself.\*

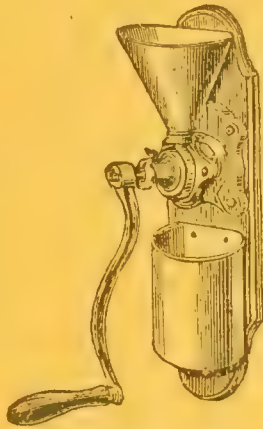


Fig. 24.

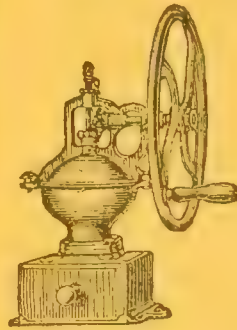


Fig. 25.

"Given these conditions, excellent bread can be made as follows:

"Mix the meal in lukewarm water to an easily kneadable consistency, working it then with the hands, until it comes away from the pan and the hands without sticking. Throw it on a floured board and knead it thoroughly. Roll out to a thickness of about an inch, put it on an oiled or buttered tin, and bake it in a perfectly closed oven. To avoid blistering on the surface, prick the dough before baking it. Two hours at the most will produce the desired result. If a shiny appearance is preferred, briskly brush it over with a wet sponge about one hour after it has been in the oven, being careful to close the door gently and promptly.

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\* See Figs. 24 and 25. The former apparatus is fixed to a wall, the latter intended for a table.



"Currants, sultanas, dried plums, raisins, figs, etc. (stones being duly removed), previously soaked over night in a little water, and then well dried, can be mixed in with the dough. It produces a delicious result.

"Rye wholemeal is very difficult to bake, rarely succeeding unless a particular kind of oven is handy, such for instance as is used in Westphalia for pumpernickel. Ordinary ovens generally make it necessary to add a little yeast, but this should be put in in just sufficient quantity to ensure rising.

"To make better loaves, it is advisable to add a little yeast, dissolved in water, to the dough, and to bake it in oiled tin moulds — the crust is less hard than when the baking is done on flat tins.

"Although wholemeal bread is good and nourishing, it does not agree with every one, especially in hyper-civilized places. Here so much pressure is put upon the human organisation, that weakness and digestive disorders are even noticeable in children, who are naturally affected by heredity. All those who are free from such troubles, take much exercise, and live an open-air life, easily assimilate this kind of food; but townfolk pay the penalty of indoor work, or luxurious living; also of partaking too freely of irritating food, coffee, tea, medicines, etc., whilst too much smoking is not good either."

The following recipe will be found serviceable for weak people, teachers, artists, clerks, employés in factories, artisans, etc.

Bread consisting of one-third of wholemeal and two-thirds of fine flour.

I must add a recipe produced by personal experience:

Mix about 5 lbs. of whole wheatmeal with about one quart of water. Work the dough thoroughly; make four loaves out of it, placing each one on a clean dry tile, sprinkled with wholemeal. Moisten the top of the loaf, and place it, with its tile, on an empty flowerpot. Put all this contrivance into the oven, but without any other food. The heat must be kept up evenly. After half-an-hour, turn the part of the loaf facing the opening to the back of the oven. When, after twenty-five minutes, one side of the crust is firm, turn it over to ensure the same result on the bottom. Let it bake another hour-and-a-quarter; when perfect, the bread gives a hollow sound if tapped at the top.

The late Alfred von Seefeld, another pioneer of Vegetarianism, gives a good recipe in his little volume ("The Simplest Cookery Book." Hannover, 1894.)

If we had our old-fashioned mills, the preparation of wholemeal bread would prove an easy matter, now that the miller finds his wheat ground so finely that it is more difficult to obtain sifted flour. Yet, with ingenuity, a contrivance might be arranged at the point at which the wholemeal has not reached the fine sifter; otherwise the remedy lies in buying, washing and drying the wheat, and grinding it in a hand-mill; indeed, at a pinch, the coffee-mill would answer the purpose.

The substance must be absolutely free from all extraneous matter, dust, etc. It should be kept in a cool, dry place, not in a drawer with various other things, which would make it most unwholesome.

Wholemeal is not only good for bread, but for making many other things. It can be used for making soup, pancakes, fritters, and any preparation requiring flour.

For instance:

(a) Knead the meal with cold water only, to a stiff paste; form three or four cakes, and bake them. If the oven is well closed, to prevent the escape of steam, they will remain soft; if the outside is hard, slice the bread and use it for soup. Anyhow, the substance must be well masticated, so as not to prove indigestible.

(b) The oven will bake thicker "slabs." For this purpose work the dough over night; knead it again in the morning, with as much more meal as it will conveniently absorb. Then shape it into long loaves, and let the baker bake it with his brown (black) bread. Long moulds can also be used, after smearing them with olive oil; then put in the dough, cover them, and bake at home. This is rather heavy in its results, but is wholesome if well masticated.

(c) Waldesheimer fashion. — Mix the meal with boiling water, in a basin, with a wooden spoon; then bake as shown in (b). This produces a sweeter, crisper result, because a large portion of starch is converted into dextrine.

(d) Luxembourg fashion. — Prepare the dough as in (a); shape it into small rolls, and put it into a cold oven. Then make the oven hot, which slower process will induce a state of fermentation. The rolls will be ready in one hour, and should be freshly made when required.

(e) A less firm loaf can be produced with a small quantity of yeast, but is less nourishing, and not so generally palatable. After the yeast has been put in, work the dough as in (b). Too much yeast and too long working will produce a dry, crumbling effect. Otherwise, this is easily digested by invalids.

(f) Currant bread. — Add sultanas to the (b) recipe, and a tasty loose loaf will be obtained. It keeps fresh longer than others

(g) Graham rolls. — Mix the meal with part water and milk, a good many currants and very little yeast; a small piece of butter and a few drops of oil. Bake in long rolls. This is excellent for festive occasions.

(h) Rye bread and pumpernickel require special ovens. So that, with a little or no yeast, wholemeal bread is easily produced.

I ought to mention that Dr. Gustave Jäger, of Stuttgart made an important discovery. He found and proved that the woody fibre plays an important part, not only in clothing mankind but in the preparation of bread. The outer husk of the wheat ear consists of woody fibre, which has the peculiarity of attracting unpleasant smells. This explains the reason why all kinds of bread in which the husk is used attract smells easily, and deteriorate more easily than fine meal and ordinary bread. This makes it all the more imperative that we should use nothing but the freshest meal, to avoid a stale and rancid taste.

In consequence of this discovery, we are now able to produce bread containing the full nutriment, and which not only keeps fresh and untainted, but can easily be assimilated by those who are troubled with bad digestion. The mechanical irritation of the stomach and intestine is produced by that little outer husk, which, in its turn, is excellent for those whose intestines are strong.

This, says Professor Dr. Gustav Jäger, opened up a new era in the preparation of bread. They first endeavoured to remove the husk without the gluten layer beneath it, a proceeding which had the advantage of completely cleansing the wheat. The technical difficulties attending this removal have been overcome, so that simply the outer husk can now be removed. On the other hand, the process still means a loss of husks which contain part of the gluten, but in a smaller quantity. In unstripped wheat this loss amounts from 20%

to 25%, and in stripped wheat 8 to 10% of the total weight, so that this flour loses a good proportion of nutritive matter. This can only be restored by dissolving the nutritive portion of the husk, to add it afterwards to the flour.

Such wholemeal bread, free from raw fibre, containing assimilative nutritive parts in the same proportion as that made from corn, is an advantage which other bread does not possess, for it lacks almost all the properties which help to form flesh, bone, teeth, brain and nerves, to say nothing of the natural digestive ferment which is contained in the germ or embryo.

Considering the important influence bread exercises on human beings, it should be an imperative duty on the part of private individuals and the authorities to make the production of hygienic bread a matter of public welfare. Much greater attention should be given to this point by producers and consumers.

The general health would improve, and illnesses would decrease, if our main food were prepared according to the principles dictated by hygiene. Only in this sense, with the view of obtaining what would indeed be for the benefit of our health, can we truly pray thus:

"Give us this day our daily bread."

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## PART II.

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### Method of Application.

"Follow it intelligently and honestly".

Hahnemann.

"Not the whole of an art can be taught, yet the artist needs the whole. He who knows only half of it, is always confused and talks much; he who knows the whole is content to act — he speaks little and late. The former has no secrets and no strength; his doctrine is like baked bread, sweet and satisfying for a day. But flour cannot be sown, nor should the seed be ground — Words are good, but they are not the best. The best cannot be expressed in words. The spirit which moves us is the highest."

Goethe.



## INTRODUCTION.

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Before I attempt explanations as to the practical use or application of this "Natural Curative Treatment," I must say a few words by way of preface.

Dear reader, I beg that you will most carefully follow the precepts given in this part of my book concerning the temperature and duration of every water application. Avoid excess or exaggeration in everything, for it will never hasten your recovery. Nature is the one and only thing which carries out the healing process in you. The best help you can give is to forward and assist the work. Excess will only impair your vitality, through making too trying a call on your natural healing powers, which may not be strong.

In every illness have patience, and persevere, and in most cases you will find in this part of my work instructions which, if carried out, will bring back health more surely than by calling in the doctor and using this or that medicine.

It is of course necessary in complicated cases to have the advice of a man experienced in the natural laws of treatment. Do not neglect this, if you do not feel on safe ground, and before you can trust yourself to help those you love. But remember that practice and experience make the best teachers.

Make it a sacred duty to become promptly acquainted with the means recommended by this Curative Science of Nature, in order to cure yourself and others.

If you are still under the ban of medical science, it will take you some time to regard this, the only Natural Cure, with faith, and to believe that natural health can be re-established without the use of medicines. Every living being has this intuitive power working in him, which repairs and makes good any damage or injury without your assistance. Do not therefore trust to physic or ointment, for the wise



Creator supplied a healing force for you when you came into the world.

We know full well that nature alone heals, and that it is the natural power within us which alone can destroy disease. We must leave it to this power, which never errs, and never takes the wrong road to attain its object. That is why it is so dangerous to use all kinds of medicines, which suppress and finally destroy that great gift which is ours. Long illnesses and fatal endings can be the only result of such proceedings.

The number of diseases which are increased and made incurable through wrong treatment are still legion. It would be safer to leave the patient, and trust him to chance; certainly this would result in fewer deaths than occur with the "Profession."

Thousands of persons die for lack of water, air, and light, which are the very principles of existence for every being, and without which one must sicken and die.

Let patients at any rate have these things, which will induce the working of natural functions instead of impeding them, as one does by giving strong remedies.

Everyone would be in a good condition of health were this natural law only adhered to. Let a kind fate, therefore, lead all men to find the only true means of retaining health!

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## I.

### Generalities. — Washing, Friction, Packing, Wrapping, Compresses and their Use.

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#### 1. Hints for the Use of Natural Curative Factors, of Water in particular.

1. Curative treatment, with quite cold or barely lukewarm water, may only take place when the body of the patient is warm, the feet especially so, even if it should be necessary to put them in hot water.\* The slightest shivering precludes the use of cold water. To warm the body, rub it with the hands or with hot rough towels; give a vapour foot or bed bath, or, if strong enough, the patient may take sharp exercise.

2. Morning is the best time, shortly after rising, and just before bed time; the latter is more suitable for all kinds of body packings.

3. The water treatment should not be applied shortly before nor soon after meals, as it would prove irritating; the use of soothing applications at such times must depend on circumstances.

4. The water treatment should not be used after any mental excitement, or severe exertions which quicken the circulation; both body and mind must be allowed to rest. Of course, where the temperature has risen and caused rapid circulation, and a certain nervous excitement, it would, on the contrary, do harm to wait.

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\* An exception to this is made in some applications of the Kneipp Cure, such as the knee douche, and walking barefooted through dewy grass and snow, which is very warming.

5. All applications of water, for compress, packing, or vapour, must take place in a warm room, in which the thermometer should be at 68° F.

6. A second cold-water application or compress must not be attempted until the body has recovered all its natural warmth, as a result of the first application, or until the complaint (such as high fever) seems to dictate the necessity of repeating the proceeding. There must consequently be no undue haste in the treatment, but the return of bodily heat, or the increase of fever, must alone call for a repetition of the application. What we have to bring about is not exactly the cure, but we merely have to provide nature with the means to facilitate the work of its curative functions.

7. A return of bodily warmth is induced by lying in bed, well covered; if needful, with hot water bottles under the feet and outside either knee; or the patient may walk or be rubbed.

8. If the patient is so far weakened as to experience great difficulty in recovering his usual warmth, the remedy must be modified, so as to avoid too great a reaction on the system. Wash the body in water at a temperature of 90° to 95° F., and rub him gently with a soft cloth, until the skin is dry. When the organism has so far recovered as to bear more drastic measures, let the temperature of the water be decreased very gradually.

9. The use of hot water for washings, packings, baths, say at a temperature of over 95° F., is not to be recommended (except on certain special occasions), for it has the effect of relaxing the nerves; moreover, it makes the skin too soft, and lessens the process of assimilation. In the form of compresses, etc., boiling water is only used for quite exceptional cases; for acute pain, cramps, and soothing purposes; even then it is imperative to let a cold friction follow immediately.

10. Do not begin the treatment with very cold water, and take into consideration the amount of strength shown by the patient. The colder the water the more sudden the reaction; the colder it is, the more rapid the rush of blood to the internal organs and its return to the skin, so that it is always wise to begin with a higher temperature and then to reduce it.

11. Where children are concerned every possible kindness and patience must be exercised, and inducements held out in the way of a gift, or other source of pleasure. Some

children have such a horror of cold water, that the fear of it, and the possible struggle to resist it, would prove harmful and utterly prevent the desired result. It is quite easy to see if the child is frightened, or only contrary. In the latter case it must be treated accordingly. But where fear is obvious, be kind and careful, and begin even more gradually than with adults.

Children will allow nurses and doctors to do what their parents would not venture to attempt. This circumstance must be borne in mind, so that, in one way or another, the little ones may rapidly become accustomed to this Natural Treatment, which is so much more certain to ensure health than a shopful of pharmaceutical poisons.

12. If a complaint does not immediately improve, let the treatment be continued; for if the treatment is suitable, the good result will be much more rapid than that which could be obtained by any other means. It is a cure, not merely a suppression of symptoms, as is achieved by allopathy, where the slightest opportunity causes some fresh complaint, capped by the old one reasserting itself, and so no improvement has taken place.

13. Whilst the patient is taking any form of bath, for congestive troubles, for instance, he must on no account read, to make the time pass. This occupation sends the blood to the head, thus producing what we want to avoid, and brings with it other ills. Simply let the patient sit as quietly as possible, thinking about a speedy recovery.

Cheerful spirits are a much desirable accompaniment to a rapid return to health, for the mental condition closely affects the physical. Perfect faith in the successful termination of our ailment, confidence in the water treatment, a firm resolution to overcome the period of illness, will work wonders. But those who have dealings with and nurse the patient must do all they can to cheer him, and to save him all worry.

14. The diet of the patient attacked by fever and dy acute disease must be simple, free from seasoning, snb preferably vegetarian. Where the appetite fails, let naaure dictate, and when nourishment is needed the invalidt will ask for it. In the same way, give water frequently when he desires it.

In chronic cases the diet will depend on the nature of the illness; mixed food is best, excepting alcohol and nar-



cotics. Three meals suffice for the day; the allopathic plan of eating little and often is an abnormal way of proceeding.

15. It is very important to thoroughly dry and air all the sheets, blankets, towels, compresses, etc., after every packing, etc. They should be washed with soap first. This will remove all the infection and diseased exhalings, and obviate their being reabsorbed by the patient.

16. The nurse must be experienced in the water treatment. In most cases which have not ended successfully, the carelessness of an attendant is traceable. Not only must the person in attendance be experienced, but a clever doctor of the Natural Treatment must be called in to clearly explain what is to be done. Then follow all his instructions to the letter. There should be a supply of blankets and packing articles, as well as a bath handy, in every family, for illnesses often break out during the night. If finances are limited, it would be best to save in other ways, for prevention is better than cure.

17. The sick room must be quiet and airy. An even temperature of 58 to 62° F. is suitable for a fever patient. When water is used and applied, it must be raised to 64 or 66° F.

18. The water cure must never be hurried; it fidgets and excites the patient. Fever subjects do not catch cold easily, so the packing, etc., can proceed with perfect ease. First decide the course of treatment most suited to the case, and then carry it out quietly.

19. Never wake a patient who has gone to sleep in a packing, or for the purpose of making a fresh application. Sleep is the best restorative; the packed patient will wake as soon as the wrappings have taken effect. Nature, then, in this awakening, points out the right moment for the removal of the linen. If the patient does not sleep, of course the given times should be observed.

Long or short periods of sleep frequently change the whole course of an illness.

20. During menstruation, water need not be applied; the cases in which exceptions are to be made will be mentioned.

## 2. The Thermometer, and its Use.

In order to test the degree of warmth of the air, a liquid, for instance, water for the treatment, or of the blood, we use a thermometer or measurer of heat.

The most important action of warmth is expansion; of cold, is contraction. Expansion by warmth is used for measurement, especially those bodies whose expansion is fairly regular.

Quicksilver (mercury) is one of these. The thermometer consists of a narrow glass tube, with bulb at the bottom, this being filled with quicksilver; and after the air has been extracted, the top is closed by an application of heat. A scale of figures on the tube, on either side of the quicksilver, divides the measure into degrees; the points at which water freezes and boils are distinctly marked as freezing and boiling point. The interval is divided into  $80^{\circ}$  in Reaumur thermometers; in the Celsius, or Centigrade thermometer, it is marked off in  $100^{\circ}$ ; in the Fahrenheit,  $180^{\circ}$ .

For taking the temperature of the body the Fahrenheit thermometer is employed, special ones being made for this purpose on which only the degrees which affect the blood are marked.

The scale extends from  $90$  to  $110^{\circ}$ . These points are divided into tenths, so that the most exact measurement is possible.

As it is imperative that every one should possess a thermometer, a few hints on the subject may be useful. First, it must be correct; and considering that every person is not in a position to have a normal thermometer to serve as a guide, insist at least on obtaining what is called a tested "fever" thermometer, with a guarantee that it deserves that name. This written guarantee will state the degree to which it tallies with a normal one, and give a hint as to whether the mercury is apt to run too high or too low. In very serious fever cases, the deviation by even a fraction of a degree is most important.

The "Maximal" thermometers are the most satisfactory. In these the quicksilver remains stationary at the degree marked by fever heat, there is then no danger of its shifting (unless it is overturned). When the instrument is removed

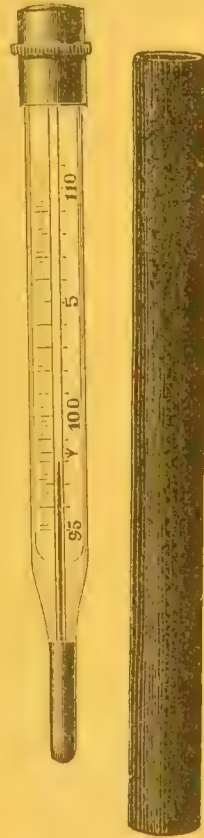


Fig. 26.  
The Temperature  
Thermometer,  
two-thirds of real  
size.

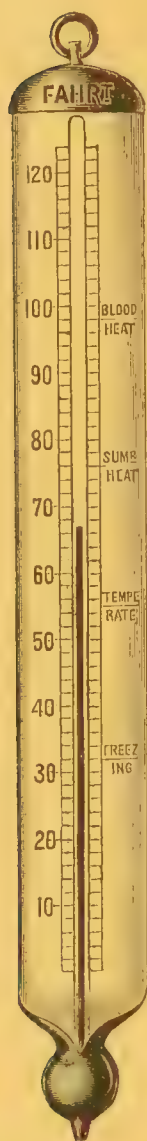


Fig. 27.  
(Fahrenheit  
Thermo-  
meter). The  
Bath or  
Room Ther-  
mometer.

from the mouth or armpit, to be read by light or window, it must then be shaken to bring the mercury back to  $98^{\circ}$ , the normal point. This precaution must never be forgotten, otherwise very serious mistakes may occur.

The temperature can be taken by placing the thermometer (bulb end) in the armpit, after having wiped the latter; by bending the arm close to the body, the instrument remains tightly secured. After ten to fifteen minutes remove it, and take the reading. But this only applies to "Maximal" thermometers; the reading of an ordinary one should be taken before it is removed. Always wash it after use.

A far more certain measurement is obtained in the case of children, when, having oiled the instrument, it can be placed in the back passage for five to ten minutes; the result would always be about one degree higher than if taken under the arm. The reading can be taken even before the thermometer has been entirely taken out, if required.

The temperature of bath water, or of water used for external application, is taken with a "bath thermometer," equally subdivided on a scale.

The Reaumur thermometer has  $80^{\circ}$ , the Centigrade, or Celsius,  $100^{\circ}$ ; Fahrenheit,  $180^{\circ}$ , plus  $32^{\circ}$ .

These therefore stand in the relationship of 9, 5, and 4, plus 32. In converting Reaumur into Fahrenheit, therefore, divide the given degree by 4, and multiply the result by 9, always adding 32 to the result. Thus  $16^{\circ}$  R. divided by 4 would give 4. Multiply this by 9 (as Fahrenheit has  $9^{\circ}$  for each  $4^{\circ}$  contained in Reaumur), this gives 36; add 32 to this, and you have 68; that is to say,  $16^{\circ}$  Reaumur equal  $68^{\circ}$  F. In converting from Celsius, use the same proceeding, but dividing by 5 instead of 4 (as each  $5^{\circ}$  Celsius are equal to  $9^{\circ}$  Fahrenheit), and then adding the  $32^{\circ}$  to the result. The conversion of Reaumur into Centigrade, or vice versa, is simple enough, when we recollect that each  $5^{\circ}$  of Celsius equal  $4^{\circ}$  Reaumur.

### 3. The Internal Use of Water.

See Chapter 9 of the First Part of the book.

The effort of nature in us, as we have repeatedly said, is one which tends to eliminate unnecessary or toxic substances, and a plentiful use of water greatly assists nature in this work. Assimilation, the digestive functions and tissue formation, are, by this means, greatly assisted. This is easily understood, since three-fourths of our organism consists of water. It is the best remedy, the best incentive to the regulation of the forces within us; moreover, the origin of all diseases is the presence of extraneous matter, which arrests the normal functions on which health depends.

The internal use of water, which so directly affects digestion, the bowels, the lungs, the heart, the blood, etc., is recommended for the following:

1. In all acute, irritating, or feverish conditions, great heat and rapid pulse.

2. In congestion and inflammation of certain internal organs; for hemorrhoids, liver and kidney complaints, etc.

3. For bad circulation, where the glands and juices are affected; for all formations (internal and external), such as cysts, abscesses, growths, etc., which require to be absorbed.

4. In certain kinds of diseases affecting the blood, whether through the introduction of toxins, or resulting from internal reasons; the working of the gall bladder and duct in jaundice; the acidity of urine, in gout; rheumatism, etc. — In anæmia, water is not desirable.

5. All accumulation of matter which hinders the natural function of the organs, or entirely stops them; in cases of constipation, with its attendant results.

6. In a predisposition to tuberculosis, scrofula, cancer, etc., diseases which originate in the faulty composition of the blood.

7. In cases of obesity, and for those who are abnormally thin, owing to digestive troubles. Water used internally works in two ways. It induces a general "renovation" of the tissues, as well as greater power of elimination.

But it must be fresh and cold. If it has stood, or is naturally rather lukewarm, it is useless for curative purposes. The patient finds it repugnant to his taste, a sure sign that the stomach and the bowels have revolted against it.



Circumstances must dictate the amount of water to be taken daily; the nature and form of disease, age, sex, occupation, must all be considered.

The first step is to take one glassful at a time, to sip it slowly, swallowing each mouthful after a slight pause, moving about the while. Then the second glassful will be enjoyed, and so on, until the full complement is reached.

The movement is needed to retain the normal heat of the body. As the water is colder than body heat, this would sink at first contact with the water; exercise prevents this sudden change, which is naturally undesirable.

Water acts by reflection, as it were, on the stomach, and then on the action of the heart and lungs; the pulse beats more slowly; breathing, as a result, is also slower, but fuller and deeper.

The introduction of water in mouthfuls is just what acts so wonderfully on the gastric juices. The blood vessels are influenced in the same manner. First they contract, then expand, and, in doing the latter, strengthen the function of the digestive organs.

This slow drinking increases the appetite, strengthens digestion, and acts as a natural aperient.

Quick drinking in large quantities affects the organism in the opposite manner, hence stomach catarrhs, paralysed functions, etc., therefore, reader, beware.

Drinking must take place at intervals throughout the day; the best time is on rising, before eating; from one to three, or even four glasses, may be taken then. Begin with one glass, then increase the next day, not increasing beyond three glassfuls. Water naturally acts more freely before the stomach is loaded. The exercise ought to be taken in the open air, and the result will be a healthy appetite for breakfast, malt coffee, milk, wholemeal bread, butter and fruit, being suitable for this meal.

Take a rest, and again drink one or two glassfuls before the mid-day meal, and do not eat, or let the patient eat, until half-an-hour after drinking. The invalid would do well not to drink during the meal, but afterwards, and only one glassful. The food must be simple, and not over-seasoned.

Again, three or four hours after, two to three tumblers should be emptied by degrees, and all above precautions adhered to. Light food is desirable, eggs, fruit, milk, wholemeal

bread, etc. No more water must be taken before bed time, unless in exceptional cases.

It is impossible to fix a precise quantity for daily use in a particular case, just as one cannot determine the length of the treatment beforehand. Water must, like other things, not be taken in too large doses, nor can it be limited except by the nature of the complaint and the constitution of the subject; its digestive functions have also to be considered. As every treatment is an abnormal phase, it must never be prolonged after its object has been attained. The water treatment, internal or external, must not be carried on for a lifetime; it should have intervals, at the first sign of repugnance, and must be stopped gradually, so that the return to ordinary habits may not affect the patient.

But, on the whole, no undue anxiety need be felt on the subject of internal water treatment. Those who have died from drinking too much water are easily counted; those who have relied on medical treatment, in vain, are innumerable.

#### 4. The External Use of Water.

Water for external use is a remedy which works in various ways, on the sound as well as on the diseased body. It varies according to the temperature at which it is used, the part to which it is applied, and the smaller or larger surface. This the reader knows from a foregoing Chapter, "Hints on some Uses of Water," so we need not recapitulate.

In order to influence the organism, to increase vital action, and to effect cures, water is used — as a stimulant (the warming treatment); to aid elimination (lowering treatment); as a strengthener (active treatment.)

Where water is needed, it is always either to heighten or lower the condition of the system, either to decrease or increase functional activity.\*

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\* The changes of substance, which occur in every illness, are caused by some peculiar circumstances affecting the molecules. These being provided with some motor power, assimilate or detach themselves; this motion is immediately affected by water; being hurried or detained, as the case may be. The different results before mentioned, which are expected from the water treatment, therefore explain themselves. It is regulated by external as well as by internal treatment, the former being of great effect, owing to the large surface covered by the epidermis.

It has been repeatedly stated that the principal cause of illness lies in faulty processes of assimilation, etc.

The two principal rules are these:

When the temperature is low, and the water is applied for a short time, it acts as an irritant; the colder the water the shorter must be the use of it.

Eliminating power is induced by a longer bath, etc., at a higher temperature.

The celebrated authority on water treatment, Dr. Pleniger, subdivides water temperature thus:

Quite cold. . . . 41—50 F. = 5—10 R.

Slightly warm . . 50—59 F. = 10—15 R.

Lukewarm . . . 59—68 F. = 15—20 R.

The condition of the body, however, makes it necessary to modify these limits; owing to the prevalence of weak nerves, etc., the revised list would read thus:

1. 46—55 F. = 8—13 R.

2. 55—64 F. = 13—18 R.

3. 64—73 F. = 18—23 R.

and can be taken as the normal modern scale.

The warming method is applied in all cases in which the functions are impeded, and need to be excited to greater activity; this occurs mostly in chronic diseases, where circulation and the blood in general are disturbed. The cold water acts favourably upon the nervous system, hastening the process of change and combustion. It must suit the individual condition of the patient, and be applied in the form of baths, washings, douches, etc., applied energetically and quickly, under conditions of atmospheric temperature most likely to supply the system with fresh heat. This is also the object of stimulating or exciting "packings," wrappings, etc., at a temperature of 55 to 64 F. The first feeling of cold ends in additional warmth. The lower the vitality of the nerves the colder must the water be, so as to induce a greater amount of bodily heat.

An example will make the process very clear. Think of the first feeling produced by snowballing, and compare with this the burning heat which soon follows the numbing cold.

This is the precise principle of the water treatment. Local treatment of the body can be applied at a lower temperature than that which concerns the whole body; quite a short application, better explained by the term "shock," is always sufficient to induce the needful increase of heat; moreover,

it is perfectly safe, whilst a longer treatment might produce a chill with bad results. Age, temperament, sex, etc., must be considered in this, as in every other circumstance; but to obtain a satisfactory result, the prompt and natural reactive power must be present. Should this not be an attribute of the patient, a so-called strengthening treatment should first be gone through. Warmth must be induced by means of mild bed vapour, chair vapour, and other baths.

The second treatment is naturally carried out with the opposite object, for soothing purposes, removal of inflammation, etc. Here warmth must be abstracted without excitement, in order to restore the normal power. This abstraction of heat must needs be performed with the greatest care, otherwise the nervous system would receive a shock, detrimental in its effects upon the inflammatory or other condition of the patient. The water is applied in the form of washings, packings, compresses, either at 55 to 64° F., or, to begin with, at 64 to 73° F. Baths and injections should first be 64 to 71° F., if necessary, even 71 to 77° F. The linen appliances, intended to suppress inflammation, etc., should be thick, but slightly wrung out, and replaced by fresh ones as soon as they become warm; if left on in this condition, the opposite result, viz., an exciting one, would be obtained.

The strengthening treatment purposes to harden the patient, and is therefore only suited to persons who are relatively strong, or who have reached the last and more satisfactory stage of their illness. By baths, douches, washings, etc., the cold reaction is reduced. The skin must be seasoned for the reception of cold water, with a view to avoiding the too sudden change; the blood must be enriched, the activity of the skin strengthened, as well as the nerves and other organs.

To believe in the value of cold water, we need but judge of the bracing effects of cold on the organism, and remember that water consists of nine parts of oxygen. Then water affects the bodily electricity, which is communicated to various parts of the system by means of the nerves.

If we consider the wonderful effects of water upon nature, on growing plants, etc.; when we see the dried-up stream swell under the influence of rain, etc., we cannot refuse to realise that its power over the human body must be of the same beneficial kind.



## 5. Washings.

These are required not only for invalids, but are excellent for hardening the body generally, and are therefore adopted when the condition of a patient precludes a different treatment; where baths are unobtainable, or where patients are too ill to be moved, washing must be resorted to.

### Mode of Self-treatment for Persons who are not incapacitated, and for Chronic Cases.

The principal things which should be ready at hand are:

A fair-sized bath.

A Reaumur or Fahrenheit thermometer.

Water at a temperature suited to the patient; 53 to 64° F. is a good average, though stronger persons will bear it colder.

A washing glove.

Two or three towels.

A bath mat or blanket.

The temperature of the room at 59 to 61° F.; a chilled condition precludes the use of a bath.

In leaving your bed, quickly put on stockings and underclothes, stand on the bath mat, and strip to the hips, tie a towel round your body to avoid wetting the clothes you have on. Then with the glove quickly wash your head, face, neck, shoulders, and all the uncovered part, sponging yourself



Fig. 28.

thoroughly; rub yourself dry briskly; then, with a wet cloth held in both hands, wash your back, holding the cloth above your shoulder in the right hand, the other being close to the body. Now rub up and down, changing the position of

the hands to do the same in the opposite direction. Fig. 28 shows a man using a larger cloth than the hand glove, but the manipulation is the same.

Dry quickly, put on some clothes, strip the lower part of the body, and wash, in the same way, first one leg and then the other, drying each separately, not both legs together. By sitting or crouching over the bath the rest of the body can be washed. After this put one foot in the water, dry it, put on a stocking, and do the same with the other foot; then do some slight but brisk gymnastic exercise, with open window, or in the open air, until the circulation is fully restored; weakly persons do well to go to bed again.

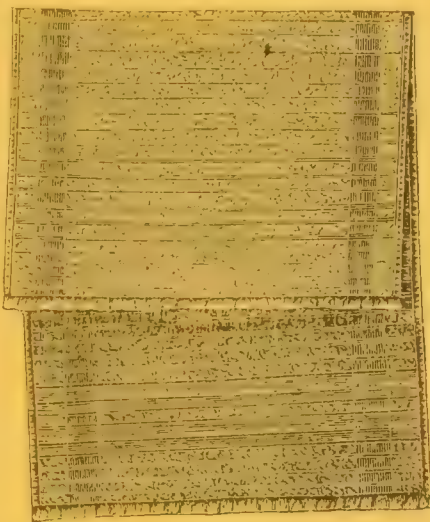


Fig. 29.

Of course those who are strong and well can strip and perform the ablution all over the body at one and the same time, never, however, neglecting the necessary reactionary exercise.

Very hardy constitutions will bear the bath at a temperature of 46 to 54° F., but only on leaving their bed. The

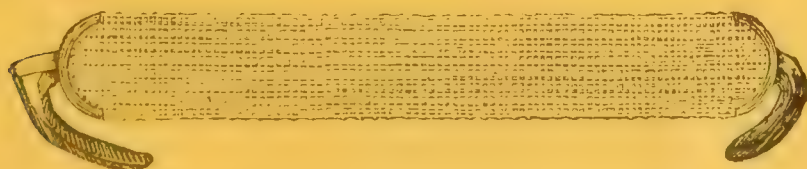


Fig. 30.

process must in every case be very brisk, and the after-rubbing is imperative. In a very cold room the ablution of the separate parts of the body is advisable.

Dry rubbers and brushes are very beneficial for cleansing the skin and opening the pores. The former are made of coarse hemp, with room for the hand; the brushes are bent and easy to handle.

Folding indiarubber baths are very useful, both for travellers and for those who have little available room; they

should be placed on something to avoid splashing the floor. In these you can sit or stand at will.

So it is easy to wash in this manner, energetic and quick action being the order of the—bath; the upper part of the body alone should never be washed.

I have already stated how necessary it is to bathe thus daily, but I cannot help impressing it again. Far more than half of our food and drink is expelled from the body through the lungs and the pores. I have explained this in my remarks on "Clothing and Bedding," together with the working of all the minute pores, glands, and nerve ends.



Fig. 31.



Fig. 32.

This netting, as it may be called, consisting of periphery nerves, communicates with the brain and spine, thus working upon the whole of the nerve system. The application of



Fig. 33.

cold water sets the whole system in motion, by means of an electric and magnetic current, which continues long after the action on the skin has subsided. The more active the nerve molecules the quicker the electric current, and the intenser the activity created, which is so beneficial to the system. It regulates the circulation, preventing a rush of blood from being concentrated in one place more than in another, and intensifies the power of the digestive and oft-mentioned eliminating

organs. The toxins and other extraneous substances being cast out or absorbed, vitality, health and comfort are maintained or restored.

Yes, such is the vivifying power of water!

The morning ablutions are no waste of time; only laziness, uncleanness, and stupidity, can possibly prove ex-

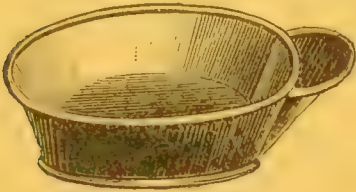


Fig. 34.



Fig. 35.

cuses for neglecting them. Consumptive persons, and other sufferers, especially those whose nerves are affected, will benefit beyond belief by such proceedings, beginning at a temperature of  $86^{\circ}$ ,  $85^{\circ}$ ,  $84^{\circ}$  F., and gradually decreasing to  $72^{\circ}$ ,  $68^{\circ}$ ,  $64^{\circ}$  F.

### Treatment of Acute Diseases, Chronic Invalids, Bedridden Persons and Young Children.

This must naturally be carried on by a second person. (See p. 171.) The required articles are:

A suitable bath.

A Reaumur or Fahrenheit thermometer.

Water of a temperature applicable to the condition of the invalid:  $16^{\circ}$  to  $24^{\circ}$  R. =  $60^{\circ}$  to  $76^{\circ}$  F.

A soft hand glove or washer.

Some dry towels.

A sheet or blanket, to avoid wetting the bed.

A room temperature of  $59$  to  $60^{\circ}$  F. and a normal warmth of the body. Perspiration does not preclude the ablution, on the contrary, it is in this condition that washing will be most serviceable, as the opened pores render one very liable to a chill; cold water does its work best on a perspiring surface.

Proceed thus in fever cases: Lift the patient a little to spread the blanket under him; if he cannot absolutely be moved bodily, slip it under him by degrees; uncover him from the feet upwards, and wash the body from the chest downwards, until the skin is quite cool to the touch. The



glove must be repeatedly dipped in cold water, and then gently applied always in the same direction. The water must be changed when great bodily heat has impaired its coolness.

When the patient has been dried, either by means of slight pats or gentle rubbing, pull down the shirt, and let the patient either sit up or lie on his side. Uncover the back upwards, and wash downwards as before. The same applies to the arms, and finally the legs, which, by the way, must be covered up during the former process, one being still covered until the other is washed, and so on with the feet, always keeping the parts not under treatment fully covered.

Where the patient is very weak, the back ablution may be omitted, as it would excite rather than benefit him. He may be too ill to bear the whole of the front process, in which case it may be performed at different times, morning, noon and night. In cases of abnormal weakness, proceed according to the instructions given in the Chapter concerning the "Hardening of Children."

If the patient can move, the shirt may be carefully removed under the bed clothes, and the washing proceed, uncovering as you go on.

Chronic patients, who, though not bedridden, cannot or will not wash themselves, should have the body quickly washed; then each leg and foot separately. The arms and legs can be treated with colder water ( $3^0$  or  $4^0$  R. =  $5^0$  or  $8^0$  F. less) than the trunk. In such cases rub the skin rather hard, to increase circulation. This must take place immediately on rising, the patient returning to bed until warm.

In acute cases wash the patient when he becomes heated and excited; in high fever the effect of the ablution is sometimes very short.

If the armpit remains hot, the ablution has not been long enough; in fact, it should always be continued until the skin, after being dried, remains firm and cool.

If the extremities are cold, they must be warmed before washing.

The effect upon fever patients is to reduce the heat and decrease excitement, by allowing the blood to circulate more freely; this naturally frees the heart, the lungs, and the brain from congestion.

Most chronic diseases are soon affected by the above-mentioned washing, but remember the necessity of performing

the ablutions at the time mentioned. It is the warmth obtained in bed which makes them so beneficial.

Both in chronic and acute complaints the ablutions can be started at once, not only because they are easily carried out, even by people in poor circumstances, but because they are the best "seasoning" for possibly drastic processes.

Ablutions for the so-called "warming" process, after an application of vapour in form of some kind of bath, or after packings of any description, need not last as long as the former, nor do they need such particular and minute temperature readings. The vapour has then acted upon the pores, evaporation has taken place, and the application of cold water merely aims at cooling the skin, and closing the minute superficial blood vessels to prevent a chill. Naturally the subsequent drying is imperative.

A wet soft handkerchief, frequently wetted, is quite sufficient for washing weak patients. For stronger patients the Priessnitz mantle friction is desirable. (See page 174.) At the same time the friction must not be too violent, since it is merely a question of cooling the skin. The drying, in this case, can be performed by pressing and tapping.

For small children proceed thus:

Have two chairs near the bed, one for the water the other for the child, who will have previously been stripped in bed. Let him hold on to the back of the chair, then quickly wash him with the bare hands, or a sponge or cloth; pat him dry and put him back to bed.

Local or partial ablutions, which are only for the extremities, arms, hands, legs, and feet, at  $15^{\circ}$  to  $14^{\circ}$  R., or  $59^{\circ}$  to  $57^{\circ}$  F., or, in special cases,  $10^{\circ}$  R.= $54^{\circ}$  F., need no particular explanation. They are used for cooling, lowering, and eliminating purposes, to bring the blood back to the surface; every part is washed separately, and more or less rubbed.

### The Non-drying Process.

This plan of not drying after baths, etc., is one of Kneipp's own introduction. He never allowed drying. This is what he says in his "Will":

"Many persons object to the idea of giving up drying, indeed, many have totally eschewed bathing because they were afraid of going about wet all day! A doctor told me that he had given up such ablutions, until he was forced to

undergo the treatment at Wörishofen; he came to the conclusion that there was a vast difference between the two processes. The moisture drawn in to the pores becomes speedily warm, and quickly evaporates; this moisture taken up by the clothing produces a comforting condition. Domestic and wild animals give striking proofs of the harmlessness of water, since they are never dried after a shower, or a swim. The Creator of all things dries them, and the animals are sound and healthy. Therefore, ablutions without subsequent drying produce quicker and stronger heat, without disturbing the action of the pores. In rubbing, the result must be rather different; but although drying either does no harm at all, or but very little, it cannot be of great advantage in any case."

I may add that the non-drying results in a most soothing condition, which drying does not give; and especially comforting when woollen or porous clothes are worn. Still, many patients have very little natural heat, and require no reducing of the same.

On the contrary, everything must be done to preserve it all. They would not benefit by the non-drying system, and possibly feel very cold in the interval, because the evaporation would be retarded by the weakened reactive powers of the patient. Therefore, in chronic cases, where the vitality is lowered, rather rub hard to induce a rapid and better circulation.

In fever cases, where the heat of the body is at its height, the drying may be omitted, as the superficial moisture evaporates and equals cooling. This cooling effect is heightened, and the effect of the ablution in this way strengthened.

But, obviously, it may not be applied to all patients suffering from fever; where local washings are concerned we have the exception. Drying can only be omitted where the washing has been over all or at least half the body.

Those who omit the drying process must naturally dress or cover themselves up immediately afterwards. If the person does not return to bed directly after the bath, he must quickly put on all his clothes, leaving all buttoning up, tying, and general tidying, until the end. Open-air exercise is also very beneficial under these circumstances. It is only in this way that the natural warmth will be induced and a chill avoided.

## 6. The Friction or Rubbing.

This is a kind of washing process, the subject being enveloped in a wet sheet, whilst another person rubs the body through the wet sheet. The action must be an energetic one, hence its name. The process is a Priessnitz one, and is called the Water Air Bath, the Mantle Rubbing, etc. It is adapted to serious and acute cases, at a stage in which the patient can still stand; epidemics (cholera, dysentery, typhus, etc.), and in some chronic complaints.



Fig. 36. The Rubbing. (The wet sheet is folded over the breast, and passed under the left armpit.)

It is necessary that an attendant or friend should understand the treatment; further, a bath is wanted, water  $14^{\circ}$  to  $22^{\circ}$  R., or  $58^{\circ}$  to  $72^{\circ}$  F.; a rubber, or some woollen material, or straw mat; two coarse linen sheets or wrappers, one soft and worn, which will the better hold the water — the size should be seven to eight feet in length, and four to six in breadth. The ordinary single bed sheets would therefore scarcely fulfil the purpose.



The temperature of the room, 60° F.; that of the body must be normal.\*

The attendant soaks the soft sheet in water, wringing it out imperfectly; the ends which come uppermost should be plaited or gathered, so that they can be more easily held. The wrap is placed round the whole body, pulled up and caught together under the left shoulder.

But, first of all, the patient removes her things under the bedclothes, and quickly stands in the bath, either bare-



Fig. 37. The Rubbing. (The wet sheet is passed over the back to the right shoulder.)

footed on a mat, or wearing felt slippers. The first cloth being wrapped round, as just explained, it is kept down by holding the right arm straight down the body, then, after being brought round to the shoulder and folded on the back, the left arm

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\* Except in acute cases, where the "warming" treatment must be attempted as a last resource, such as the collapse stage of cholera, when the skin is bloodless, bluish, and the temperature is obviously below normal. In such cases the water should be very cold, therefore lower than the above temperature. In fact, if any effect is to be hoped for in the cholera collapse, it must be in the application of "heroic" cold water treatment.

goes down to keep that side in place. The attendant in the meantime has not let the two ends out of her hand, and the sheet being brought round is folded across the back, brought forward over the hanging right arm high up to the neck, covering the patient well, then over the left arm and across the back again, finally tucking the gathered end tightly in over the right shoulder.



Fig. 38. The Rubbing. (The wet sheet is passed from the back over the right shoulder, to be brought round the back.)

This is now fixed at the neck. The attendant draws the sheet close around the body, and the patient holds, in the covered left hand, the loose end of the cloth which is undermost at the point where the wrapping started. Round the legs it must be pulled very tight, all the damp sheet being made to cling to the body. Then the rubbing soon brings back bodily warmth. There must not be any air left between the body and the wrap, or the part rubbed will become red and painful. The head is quite free; the feet only covered by the end of the wrap.

Needless to say that this wrapping must be done briskly, and as quickly as possible, so that it is well to practise on a person who is not an invalid. This will give experience, and obviate what might prove dangerous delay, and needless excitement or fatigue for the patient. In fact this Platen volume must generally be studied in days of health, without waiting for illness to break out. Then it is too late, and



Fig. 39. The Rubbing. (The wet sheet is placed over the left shoulder, pulled over to the right one, and made ready to be tucked in at the neck.)

there are other things to see to, which would not leave much time for looking up the Water Treatment!

But to return. The attendant now places her outspread hands on the body, and with long quick strokes begins the friction, which must be very brisk and continuous. Rub, rub, rub again, and go on rubbing; every part of the body is treated in turn and repeatedly. First the chest, the stomach and back; then the neck, shoulders and arms; and finally the legs.

Sometimes the friction is supplanted by a pressing of the sheet to the body. The movement consists of placing the flat of the hand on the body, quickly removing it, and putting it down again: in fact, it is similar to mild slapping. This is especially resorted to when certain parts of the body are too tender to be rubbed.

During the operation the patient remains motionless, merely concentrating her thoughts and efforts on holding the end of the wet cloth.

If parts of the surface, or the whole of it, rapidly regain heat, and if it is a case for the withdrawal of more heat from the system, water must be poured over the sheet, and the rubbing continued. This may have to be done several times. Those parts of the body which are long in showing signs of warmth must naturally be treated longer; and if the patient does not get warm easily, the addition of water is not advisable.



Fig. 40. The Rubbing. (The packing is complete: the undermost end of the wet sheet, which is pulled over the right leg, is placed in the hand of the patient.)

After rubbing for about five minutes, the attendant must hold a dry sheet ready, and as soon as the patient has stepped out on to the mat and slipped down the wet sheet, wrap it round the body and continue the rubbing.

The patient can then put on some clothes, and sit down whilst the legs and feet are "frictioned."

The abstraction of superfluous heat from the body can be regulated by the sheet, which, according to its condition, will hold more or less water. A dripping cloth draws out



more heat than one which has been wrung out; a fine wet sheet extracts less heat than a coarse one, even if the temperature of the water and the friction power are identical with that of the fine one. Therefore, according to the object in view, the fine or the coarse cloth must be chosen; where the skin is very sensitive, only fine material must be used.



Fig. 41. The Rubbing. (The packing completed. The wet sheet is tucked in between the thighs and legs.)

The wet rubbing process can be carried out in another manner, as I showed on page 174.

If the patient needs the "water air" bath, the dry sheet is merely thrown over her; then she must take hold of both top ends, and wave them about, whilst the attendant "fans" her in the same way, holding the two lower ends. This may be done with the window open, but is only desirable for strong persons.

### The Effect of the Rubbing.

The effect is manifested in a combined invigorating condition of the organism; with the "Washings" of the last Chapter the result is two-fold, but separate; but the rubbing induces activity in all the pores and surface nerve ends, giving at the same time considerable increase of power to the whole nervous system.



Fig. 42. The Rubbing. (The rubbing process, with long up and downwards movement.)

It is really a shock produced on the nerves by the cold water, which, with electric rapidity, runs to the nerve centres, the brain and the spine — communicating the result, as it were, to the nerves of the heart and breathing organs. At the moment when the wet sheet is applied there is a spasm of the breath, a cramp-like sensation impeding respiration, then, as the effect of the shock passes, breathing becomes deep and regular, the heart beats better, and the pulse is in a normal condition.

The rubbing is wonderful in its effects on the circulation. When the cold first touches the body, the vessels near the surface contract, driving the blood to the inner organs; the rubbing brings it back to the skin, as elsewhere explained. This return makes the skin fuller and warmer, and, covered as it is with the wet sheet, it must give out its heat. The rubbing, however, by opening up all the pores, gives back to the body what makes it richer, and keeps up its healthy condition.

It is needless to repeat here any further explanation of effects which have been repeatedly given in detail.

When is the rubbing advisable?

In cases of congestion, or undue rush of blood to certain parts; lung catarrhs, asthma, emphysema, palpitations, etc.; in fact, catarrhs of all kinds, and whenever the mucous membrane is congested. Also at the beginning of fever, typhoid, and intermittent stomach and intestinal catarrhs, diarrhœa, &c. The treatment is suitable for quite young children, as well as for adults.

The rubbing is incomparable as a remedy for cholera, which deprives the surfaces of regular circulation by drawing it to the inner organs, as I have frequently explained. The rapid friction brings into action a "normal" circulation, the disturbance of which causes the terrible diarrhœa.\*

Rubbing must be continued for a longer time, and the water be as cold as possible. Use a coarse sheet, and add fresh water, as stated, as soon as the sheet becomes warm. After the friction, wrap the patient in blankets and cover him with an eiderdown, to induce the perspiration which is the true sign of recovery.

Many cases of anæmia, weak nerves, etc., can be successfully treated by this process. The improvement it works in the lungs and the heart induces a flow of oxygen, which, in its turn, affects the oxidation of substances, quite apart from the generally desirable influence already described.

Of course it is again imperative to consider circumstances, and to judge of the individual condition of the patient. As the treatment is a stimulating one, since it produces greater activity, so the sensitive and excitable patient

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\* In case of great weakness, the patient can lie in bed or sit on a chair. In the former case he must be turned, so that the back and the abdomen can be equally treated.

may suffer from this application of cold water, nor should it be applied where there is any tendency to hemorrhage.

To avoid congestion, or rush of blood to the head, the patient can be prepared for the cold sheet by being previously washed locally — face, head, neck, chest and shoulder-blades; or he may wear a cold head compress during the “performance.”

If the sheet is used for persons who suffer from cold feet and hands for instance, a preliminary warming process must be undergone, in the shape of a vapour bath of some kind, lasting from five to ten minutes, not to produce perspiration, simply to warm the body. Vapour applied at 104° to 111° F. will not induce perspiration on a body of which the normal temperature is 70° to 99° F.

This preliminary “steaming” greatly reduces the shock produced by the sheet, the cramped feeling caused by the contraction of the blood vessels, and the effect on the nervous system is more lasting and invigorating. Reaction sets in more quickly, which greatly improves the condition of the patient.

The “wet cold rubbing” is not only one of the material points of the water cure science, but it has the merit of simplicity, which enables anyone to attempt it. That is why I have dwelt upon the subject somewhat lengthily.

## 7. Dry Rubbing Friction.

Really hardy subjects, temporarily delicate, derive great benefit from the wet rubbing, whereas the weakly and excitable individuals require a hardening process, produced by carrying out the above “dry rubbing.”

This, coming immediately upon the wet application, not only absorbs the moisture but increases functional vitality. The mechanical irritation acts upon the displaced blood, removes all diseased matter, etc.

Dry friction is also very advisable, before any kind of wet application, to clean the pores and remove the dust, perspiration, &c., which precludes their proper functions. It certainly prepares the skin for the better absorption of the water, and hastens the thermic power of the same.

Friction can be applied with the hands, and with this manipulation it is held that any magnetic power on the part of the rubber is beneficially communicated to the subject.



A glove, or a rough linen cloth, may also be used; where delicate persons are concerned, the latter should be slightly warmed. The back and other parts of the body can be treated with a brush, friction continued until the skin becomes red, but on no account should the motion be similar to that performed in polishing boots!

## 8. The Complete Pack.

This, sometimes called "wet pack," is one of the most effective methods of the water cure, acting rather after the fashion of the wet sheet, but it achieves its purpose in a milder and less severe manner.

A friend or attendant must be at hand, also a bed, several blankets 7 to 8 feet long by 6 feet wide.\*

Two or more linen sheets,  $6\frac{1}{2}$  feet long by  $4\frac{1}{2}$  feet wide.\*\*

Water at a temperature of  $15^{\circ}$  to  $18^{\circ}$  R. =  $66^{\circ}$  to  $72^{\circ}$  F.

Room temperature,  $66^{\circ}$  to  $68^{\circ}$  F.

At least a normal body temperature, and, if possible, a bath, sitz bath, or friction bath.

Spread the blanket flat on the bed, so that it will reach half-way up the back of the head when the patient lies down. Over this (later, when the need for more than one blanket will be shown) the wet sheet is placed, unless the raw silk or tussore is used;\*\*\* so as not to reach quite to the uppermost end of the blanket.

It is a convenient plan to tack a cotton sheet or wrap to the blanket, so that it is always ready. The wet wrap, as will be explained later on, is wrung more or less dry; in some cases, two, three, and even four wet wraps are required. Right over the part of the sheet on which the lower part of the back will rest, a damp towel must be placed. The bed is shown in Fig. 43, which, however, does not sufficiently mark the

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\* The blanket should be of good quality, undressed sheep's wool.

\*\* Unbleached, or natural silk material, is often preferred, because, when wet, it does not strike so cold as linen. It keeps moist longer, clings closer to the body, which rapidly grows warm, thus more quickly absorbing the evaporation of toxic substances, etc. Nor does silk irritate, as is the case with linen.

\*\*\* A dry sheet may be placed between the wet sheet and the blanket, both to avoid the too prompt wetting of the latter, to increase the efficacy of the packing, and prevent the escape of heat.

required difference between sheet and blanket, which should be about ten inches, whilst it must extend nearly sixteen inches beyond the feet. If the existing blankets are not of sufficient length, two may be overlapped to obtain the required results.

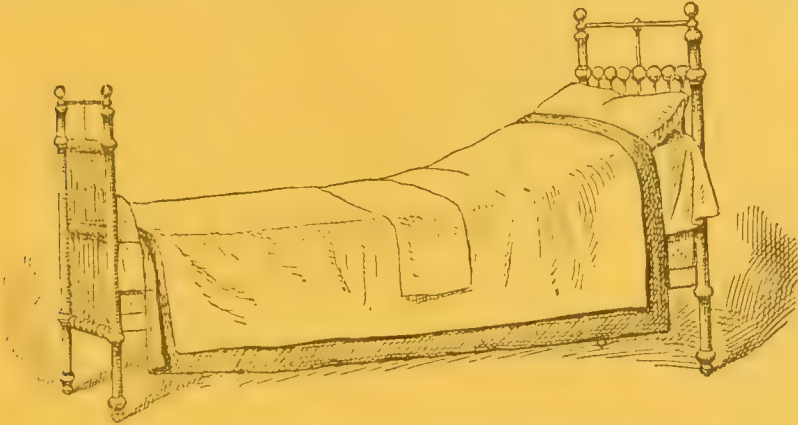


Fig. 43. The Whole Packing (the Open Packing).

The patient lies on this (Fig. 44), quite stripped. If there is any danger of rush of blood to the head, a preliminary "seasoning" washing must be performed on head, neck, face and shoulders, or, indeed, over the whole body.



Fig. 44. The Whole Packing. (The patient lies on the Open Packing.)

The patient raises his arms to allow the sheet to be pulled round, and this must be wide enough to make a double fold over the abdomen; then he puts his arms down straight, and is completely wrapped up. In order to avoid the slightest impediment to normal breathing, he may bend his arms at the elbow, so that he will afterwards have plenty of

room. The operator carefully draws the sheet round, tucking it in tightly on the shoulders and round the neck; each leg must be packed separately, and closely covered with the sides of the sheet. (Fig. 45.)

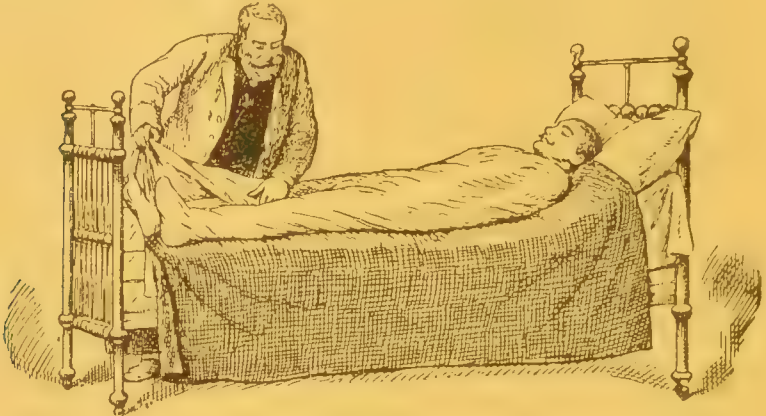


Fig. 45. The Whole Packing. (The wrapping of each leg in the wet cloth.)

Every precaution must be taken to ensure every inch of the body being in close contact with the wet cloth, which must be kept as smooth as possible. If the patient suffers

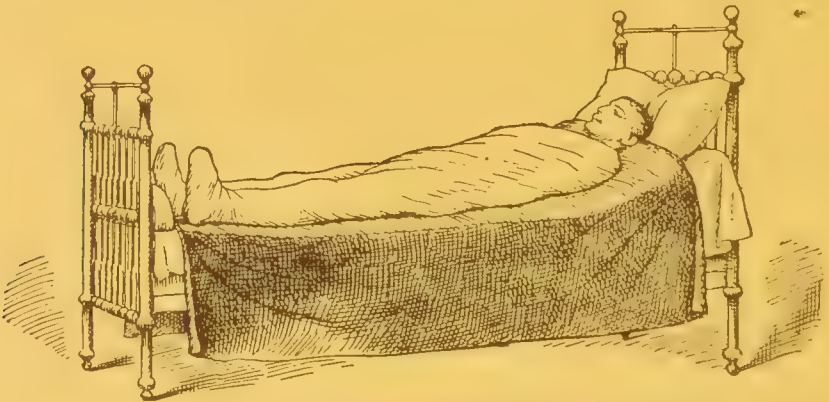


Fig. 46. The Whole Packing. (The patient lies wrapped in the wet sheet.)

from cold in any part of the body, this should only be covered by one thickness. This must be especially observed if he suffers from cold feet.\* Indeed, if this be so, for fear of their remaining cold, only wrap them in the blanket.

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\* Dry rubbing, or a vapour bath to the feet, will greatly help in warming them. They can then be "wet packed," but a hot bottle should be placed between the feet and the blanket.

When the body is thoroughly packed in the wet sheet (Fig. 46), the operator pulls over the opposite side of the blanket and draws it firmly round, tucking it in as before.

Next wrap the other half of the sheet round the patient,

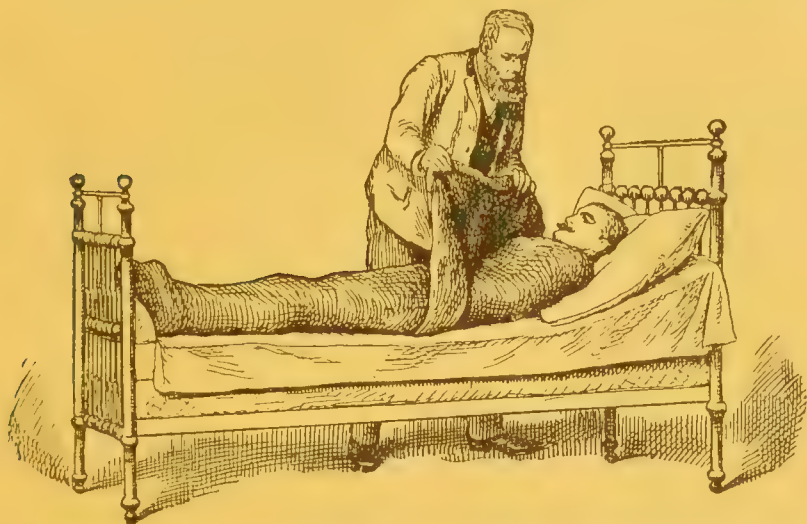


Fig. 47. The Whole Packing. (This shows the attendant holding the blanket ready to tuck it under the patient's left shoulder.)



Fig. 48. The Whole Packing. (Showing how the blanket is tucked under the left shoulder.)

fold the end, which should reach about half-a-yard beyond the feet, and tuck it under the feet, slightly raising them for the purpose. The upper edge is to be tucked closely round the neck and shoulders. (See Figs. 47, 48.)

The complete packing is now finished, and the patient lies as represented in Fig. 49.



He may be covered with blankets, or with an eiderdown quilt well tucked in at the sides, if this is considered advisable, in order to increase and accelerate the production of heat. Over an eiderdown quilt it is well to spread another sheet or blanket, which can be well tucked in, for it is of

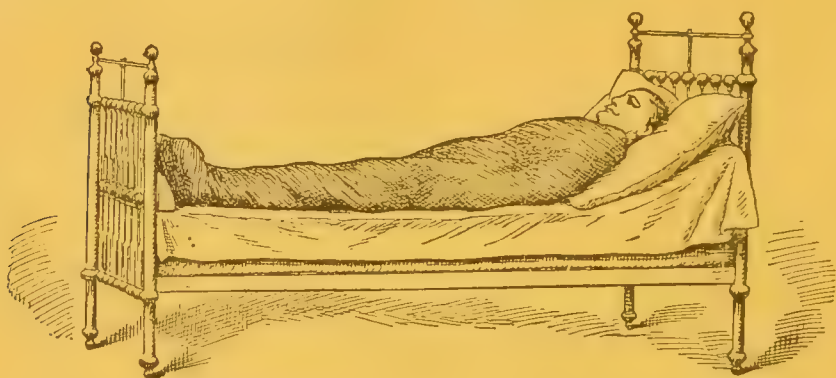


Fig. 49. The Whole Packing. (The packing is completed.)

the utmost importance to protect a patient thus packed from any draught of air.

Next open a window.

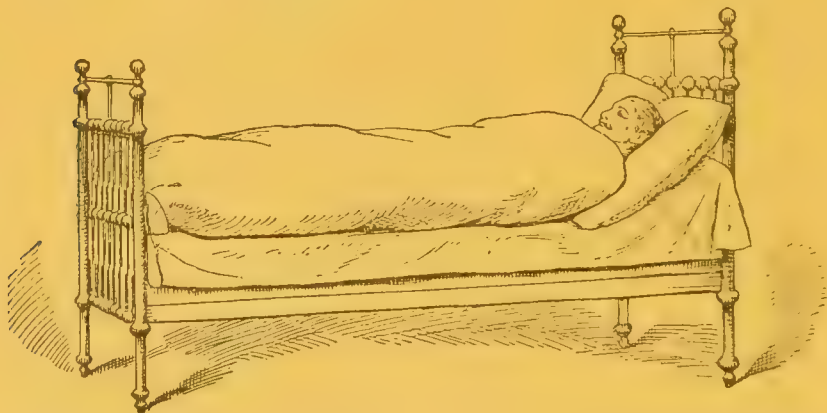


Fig. 50. The Whole Packing. (The patient is covered with eiderdown.)

Lay a pillow between the patient's feet and the foot of the bed. Take care that his chin is free from the packing sheet, and from the blankets over it, so that his breathing is quite unimpeded, and the lungs can take in fresh air, rich in oxygen.

He may remain thus from one to three hours, according to the effect to be produced. The packing must be done quickly. It requires no particular skill, but it is an

advantage to have practised it beforehand with dry cloths on a healthy person.

### Action of the Complete Pack.

I will give the requisite explanations very briefly in this Chapter, because the physiological results of washing and friction have been discussed in detail in Chapters 5 and 6 of the Second Part, and also on page 178, etc., Chapter 19, in the First Part of my book.

Cold packing, like cold rubbing, aims at the production of heat, but they differ, inasmuch as the former is independent of the mechanical action of friction, which is used to accelerate the reaction. Cold packing, however, is, like all the other uses of water at a low temperature, intended to produce a reaction, but it is one of a peculiar kind, as the heat is concentrated and prevented from passing away.

The application of cold, in the first instance, affects the nervous and vascular systems, and the action of the lungs and heart, but as the effect is not increased by friction, the difference of temperature between the body and the wet sheet is gradually diminished. The packing prevents the moisture and heat of the body from passing away, and they remain and produce in time a sort of warm vapour bath, which causes the blood vessels in the skin to expand and relax, so that the blood flows more abundantly and quickly towards the surface from the interior. On the other hand, this warm moisture has a soothing effect upon the nerves of the skin, and, through them, upon the brain and the nervous system as a whole. The pulse beats slowly, and the patient grows sleepy.

As we know, cold water deprives the body of heat and electricity, and the loss is greater when a greater surface of the body is exposed to the wet cloth. The colder the water the quicker its action, and the stronger are the electric currents flowing from the interior to the periphery. When we use the complete packing, therefore, we not only diminish the heat of the body, but we draw the blood to the skin, without thereby causing any excitement (such as is produced by cold friction), but in a manner calculated to soothe. If, however, the patient remains packed for a considerable time, the soothing effect passes away, and gives way to a sense of discomfort, heat, and excitement, for the heat accumulated round the body is causing irritation; the heart and pulse

beat quickly; the nerves and brain are stimulated to increased activity, and feverish symptoms set in. They generally lead to an outbreak of perspiration, which is highly beneficial in many diseases, although sometimes it is advisable to take the patient out of the packing, either to renew it or to sponge him down. According then to its duration, the complete packing deprives the body of heat, has a soothing effect, or produces perspiration. We have only to notice a few other points.

When is the application advisable of a wet cloth, more or less wrung out, or of several such cloths?

How are we to estimate the temperature of the water?

When is it necessary to use several blankets and quilts, to cover the packing sheets?

Before answering these questions, I may remark that the principles underlying the complete packing belong equally to all the various packings and bandagings described in the following Chapters of the first division of Part II. It must be borne in mind that one or other of two results is aimed at by every process we employ; by a long or short, complete, or partial packing; by the application of a wet cloth; by the use of water at any particular temperature; by the number of thicknesses of wet cloth, and by wrapping the patient eventually in few or many blankets — the two results being either stimulating, warming and exciting; or lowering, soothing, cooling and sedative.

We must observe the following rules in order to secure the desired result.

When we wish to stimulate, warm, and excite the patient, a cloth wetted in water at a low temperature, and wrung out, is used (or several cloths, if a very quick result is necessary), and thick blankets are used to cover the wet packing. The patient is left in the pack until he perspires. Partial packings are left on until they grow hot or dry.

If we wish for a soothing result, to counteract inflammation and relieve pain, we use one or more very wet cloths of a fairly high temperature, and either no blankets or only thin ones, and we allow the patient to remain packed only until he becomes warm; or, if local applications are in question, they must be taken off as soon as they are warm.

Both modes of treatment admit of many modifications, suggested by the character and intensity of the disease, and the age, sex, and vitality of the patient.

The crisis of every disease is accompanied by fever, and sometimes, in the case of chronic ailments, the production of fever is necessary before recovery can set in; sometimes, in the case of acute diseases, the feverish activity may be of advantage where it is kept within due limits. For both purposes the whole or partial packings are beneficial, but, as we have seen, they must be applied in different ways, in order to secure the stimulating or the soothing result.

### **The Complete Pack, for producing a stimulating effect.**

When it is desirable to produce a state of fever artificially, or to warm the body and stimulate the action of certain parts, the wet cloth must be wrung very dry. If the patient remains packed for some time, the cloth grows warm and moist heat is produced, and the water in the cloth is turned partly into vapour, which withdraws more heat from the body than the wet cloth itself. If the cloth is squeezed dry, the vapour is formed more quickly, and the heat withdrawn better than by means of a very wet cloth. The colder the cloth the quicker is the reaction, and the more permanent its effects. I must again call attention to the fact that the coldness of the water stimulates the nerves of the skin, which communicate with the brain, and if there is a great difference in temperature between the water and the body, the effect produced is refreshing and stimulating, being that of cold. But another result is the contraction of the blood vessels in the skin, and the blood is driven from them into the interior and increases the activity of the organs there. The colder the water the quicker the reaction; the blood returns to the surface, the circulation becomes more regular as the blood distributes itself more evenly over the body, heat is produced, and radiation and evaporation, and all these increase the power of the body to cast off and consume diseased matter, and the process of assimilation is carried on with greater energy. These results are particularly marked in the case of patients who are very susceptible to the action of cold water. It is a mistake to imagine that a patient will recover heat more quickly — if the water is less cold the reverse is the case.

The heat produced by the application of a cloth well wrung out of cold water, and covered with several blankets,



or by that of a complete cold packing, is so great, that it soon equals and exceeds the temperature of the body, thus causing a state of fever in which the diseased matter in the interior is brought to fermentation, and is carried by the blood to the skin, where it passes off. That the stimulating packing absorbs diseased matter is certain; we need only smell the sheets and blankets, especially when they are being washed, in order to be convinced of the fact. The smell is stronger in proportion as the body has resumed its proper functions, and has thrown off diseased matter during the packing. The water in which the cloths are rinsed is often more or less discoloured by them.

The stimulating packing, lasting some time, is best applied in cases of chronic disease, where it is intended to hasten the process of assimilation and the expulsion of diseased matter.

### **The Soothing Pack.**

The soothing or lowering packing serves to reduce fever and check excessive assimilation, and hinders and diminishes the process of combustion. According to the effect desired, it consists in the application of one or more very wet sheets, that have been dipped in water not absolutely cold, but of a higher or lower temperature, according to the degree of fever. These sheets may be covered with a light blanket, or left uncovered; the patient remains packed for a relatively short time, for one packing is removed and another applied as soon as the sheet grows warm, which, when the fever is high, often occurs after five or ten minutes. The reason for this is plain. As soon as the wet sheet reaches the temperature of the body, it can withdraw no more of its heat, and instead of being cooling it is heating, the patient becomes flushed and restless, and his breathing and pulse are accelerated. As soon as these symptoms appear, he must be transferred to a second bed, arranged with all that is necessary for fresh packing. It sometimes requires three or four, or even more packings of this kind to reduce the fever sufficiently. The changes are not unpleasant to the patient, for the sensation of cold is agreeable when the skin is warm and filled with blood. Experience teaches us that shivering only sets in when several packings have been applied, and the temperature of the body is either normal or still lower.

No special proof is needed to show that heat is most

quickly withdrawn if the packings are changed often, and if the sheets used are coarse, thick, and very wet. There is need for caution as to the temperature of the water. It is a mistake to use water too cold when the fever runs high, in the belief that it will thus be more quickly reduced. Water that is too cold will drive the blood back into the interior, and prevent any reaction, thus causing dangerous disturbances in the circulation, which show themselves in laboured breathing, irregular action of the heart, a scarcely perceptible pulse, blueness or pallor of the extremities and of the surface of the body, and finally collapse and death. If the fever is high, and the patient young and susceptible, the water must be warm in which the sheets are dipped.

As the fever diminishes, the patient may be left longer in each successive packing, because it grows hot more slowly. If the nature of the disease requires a crisis of perspiration, the sheets may be wrung rather dry for the last packing, and covered with more blankets. Perspiration serves to lower the temperature, for it is in a sense the product or scum of the fermenting matter present in the body.\*

This last packing is a stimulating rather than a lowering one, and should be applied in the case of diseases in which recovery is generally preceded by perspiration, such as catarrh, colds, etc. It is not, however, to be used in the case of inflammatory disorders, such as diphtheria, inflammation of the lungs, bowels, etc.; typhus, typhoid, and diseases accompanied by an eruption; measles, scarlet fever, smallpox, etc. These all run, more or less, a regular course, and we have only to keep the feverish symptoms within limits when they become excessive, consequently our treatment consists in the repeated application of soothing, lowering, complete packings, which require frequent renewal. There is, in fact, no better means of diminishing fever in a most gentle way, and it may therefore be used for weakly, delicate, excitable and anæmic patients, and in cases where we have to aim at quieting the nervous system, as well as at reducing inflammation, although the latter might be accomplished by other modes of treatment, assuming that the apparatus required for baths is accessible.

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\* On this subject see p. 384, Chapter 34, in the First Part. A crisis of perspiration marks the decrease of fever, for the body is trying to rid itself of excessive heat; it extends to the utmost the superficial area of the circulation of the blood, and the moisture emitted evaporates and produces cold.

## Important General Remarks on the Complete Pack.

These packings are inapplicable only to forms of disease in which it is of the utmost importance to produce an immediate stimulating effect, such as cholera, unconsciousness, apoplexy, heart failure, loss of breathing power, etc. In these cases, friction accompanied by douches, or douches alone, or baths of various kinds, may be used. Each packing is followed by another packing, or by a rapid sponging ( $68^{\circ}$  to  $82^{\circ}$  F.), or by a patting process ( $72^{\circ}$  to  $86^{\circ}$  F.), a half-bath of short duration ( $82^{\circ}$  to  $88^{\circ}$  F.), a whole bath ( $90$  to  $92^{\circ}$  F.), or a hip bath ( $72^{\circ}$  to  $82^{\circ}$  F.)

(For details respecting these see the Index.)

The last packing is always followed by a short, cooling process, which is intended partly to remove the superfluous heat still remaining on the surface of the body, thus adding to the efficacy of the packings, and partly to cause the blood vessels of the skin to contract, after their expansion under the influence of moist heat, to close the pores, and, through the nerves, to stimulate the whole organism. It is not, however, intended to drive the blood back again from the surface to the interior, or to cause a subsequent reaction.

The windows should be shut during this cooling process, and also whenever the packing is renewed. If the patient is to be sponged over after the packing, the upper part of his body must first be released and washed, as explained in Chapter 5; then he must be dried and his shirt put on. Then the legs are to be unpacked, washed, dried, and covered. The drying must be very gentle wiping, particularly where there is any skin eruption; rubbing must be carefully avoided. Rather than rub a patient, it is better not to dry him at all. (See "The Non-drying Treatment," in Index.)

The patient may then be allowed to rest, and the windows may be reopened. They should always be open whilst he is in the packings, for pure, fresh air, which is rich in oxygen, increases the warmth of a packing, especially of a stimulative packing, more than a fire. Provide the lungs with fresh air, even though you exclude it from the surface of the body. The fact that the heat is increased by admitting air is ascribable to the acceleration of the assimilative process, in consequence of the increased supply of oxygen.

The best material for the wet sheets is raw silk. It is not very costly, but where this cannot be procured. old.

coarse, linen sheets may be used. A loosely-woven material soaks up the water better than a fine one, and allows itself to be wrapped closely round the body. It is necessary to have at least two sets of packing sheets, that one may be cleaned whilst the other is in use.

After use they are impregnated with diseased matter, and should be washed in lukewarm water, then rinsed in cold water, and hung up in fresh air to dry; but when the packings are changed very frequently, it is often only possible to wash the sheets in lukewarm water before they are employed again, and to postpone a more thorough purification until the patient can be left some time without packing. Of course every sheet, whether wet or dry, must be dipped in water of the prescribed temperature just before it is used. Blankets may be shaken, and hung out in the sunshine to air. From time to time they also should be washed.

All preparations for a complete packing must be made before the patient is undressed. During the packing process it is well not to speak to him, but to concentrate your whole attention upon the correct adjustment of the cloths — without haste or flurry, for this would agitate the patient. There is no need for excessive speed, as feverish people do not catch cold as readily as they are commonly supposed to do.

If a patient falls asleep in his packing, he must never be disturbed, and must be left alone until he wakes. There must, however, be no delay in changing the packing if he becomes hot, restless and excited, or if he loses consciousness. When the packing is to be changed, everything must be in readiness on a second bed before the patient is unpacked.

Before packing a patient, ask him if he requires the bed pan. This is especially important in the case of children. Grown-up people who suffer from incontinence of urine must be packed with a receptacle for it beneath them. (See Figs. 22 and 23, page 413), and there is no harm in adopting this as a precaution against possible accidents when the patient is to remain in a stimulating packing for any length of time. Cold feet must not be covered with the wet cloth, but only with a blanket; and if there is any fear of the feet becoming cold after they have been included in the packing, apply a hot water bottle to them, and wrap a blanket round both feet and bottle. (See "Bed Vapour Bath," in the Index.)

If it is desirable to act on any part of the body in particular, in either a soothing or stimulating way, whilst



the whole body is packed, partial packings, bandages, or compresses of the requisite thickness and degree of moisture, may be laid on the parts in question. They should have been dipped in water of a temperature between 65° and 80° F., according to circumstances. (See "Partial Packs" and "Bandaging," in Index.)

### Kneipp's Method of applying the Complete Packing.

There is no radical difference between Kneipp's method and ours, though they have somewhat different names. Both aim at the elimination of diseased matter, which passes off through the skin and is absorbed by the wet cloths, which, as Kneipp says, "correct nature." The lowering pack aims at the reduction of heat, whilst the stimulating produces moist heat, and by setting up an artificial state of fever it tends to the elimination of diseased matter. Kneipp uses bandages dipped either in clear cold water, or in a hot decoction of herbaceous and other plants. (He employs hay flowers, oat straw, pine needles, and shave grass or horse-tail.)\*

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\* The cloths must be dipped in a very hot decoction if they are to produce their full beneficial effect in the expulsion of disease. In cases where there is much fever, Kneipp recommends this treatment only in the early stages, whilst there is still shivering.

The following are the directions for the preparation of these decoctions:

Boiling water is poured upon dried meadow flowers, or hay blossoms, as Kneipp calls them. It is then placed on the stove to "draw," until it looks like black coffee. The cloths are put into the pan and allowed to remain for a few minutes, closely covered up; when they are taken out they are slightly wrung, then spread upon the blanket upon which the patient is to lie.

The decoction of oat straw is prepared in the same way, and is recommended for use in cases of gout.

The patient is not allowed to remain for more than an hour or an hour-and-a-quarter in cloths steeped in either of these decoctions, for, as Father Kneipp says, to remain longer would take too much out of nature, and the sick man would soon feel that he was growing weaker. He must be taken out of a warm packing the moment that he begins to feel cold, but the cloths may be applied in the first instance as hot as they can be borne, and in order to preserve the heat, they may be covered first with a dry linen sheet, and then with several blankets.

The pine needles are boiled for at least half-an-hour, and the decoction is then ready for use. Cloths dipped in it have great power of eliminating disease, whilst, at the same time, they have a strengthening effect upon the skin, and the pleasant smell is grateful to the patient.

The shave grass is prepared in the same way as the meadow flowers. It is used chiefly in partial applications, and is particularly good for cancerous tumours, poisoned wounds, etc., on which it has a cleansing effect. After a

Kneipp's method of complete packing is almost the same as ours. He allows a patient to remain an hour to an hour-and-a-half in a cold packing, and in a warm one until it becomes cold.

### Kneipp's "Spanish Cloak."

This resembles a dressing-gown made of coarse linen, and reaching below the feet. (See Fig. 51.) It is put on wet, though it is wrung out more or less, according to the effect which it is desired to produce. The patient, after putting on his Spanish cloak, lies down upon a couch over which a blanket is laid, and a second person then covers him up with the blanket in the way described as a complete packing.

If a stimulating effect is desired, the cloak is dipped in cold water, is wrung out rather dry, and is covered with two or three blankets, and sometimes also with an eiderdown quilt. The cloak must lie evenly upon the body, without creases, and the blanket must be spread carefully, so that there may be no folds under the patient's back. The effect of the cloak is exactly the same as that of the packing with sheets. Kneipp says:

"It is enough to use it once a week or once a fortnight. I do not advocate a more frequent use, although sufferers from corpulence, who desire to reduce their bulk rapidly, may for a short time only use it at intervals of two or three days. Where the whole body is swollen, it may be used every week from two to four times. It has great power in reducing



Fig. 51. The Spanish Cloak, according to Kneipp.

"herb dressing" is removed, the patient must lie in bed to rest for half-an-hour, or an hour, well covered up. It is not advisable to have recourse to washing or bathing in order to cool him. (For further information, see "Kneipp Treatment," in the Index).

flesh, and those who are weak or thin should employ it most cautiously, for otherwise they may do themselves serious harm by depriving their bodies of strength.\*

"Many people believe that every packing, including the wearing of the Spanish cloak, ought to produce perspiration. This is a mistake. A rise in the natural temperature is intended to facilitate the expulsion of diseased matter from the interior of the body, and this is absorbed by the cloth or cloak. After the packing is removed, the patient must lie in bed for half-an-hour or an hour, because an increased process of evaporation is still going on; he is never allowed to wash or bathe after wearing the cloak."

Thus far Father Kneipp. But at an institution for the so-called Kneipp Treatment, the use of the Spanish cloak is combined with other measures, such as baths and douches. If a patient falls asleep whilst wearing the cloak, he must be allowed to sleep until he awakes, for his treatment differs in no way from that recommended in the Chapter on "Complete Packing."

### The Wet Shirt Treatment, according to Kneipp.

In slight ailments the wet shirt is an excellent remedy, and it is less drastic than complete packing, or than the Spanish cloak. A coarse old shirt of fair length is dipped into cold water, or into a mixture of water and vinegar, or into a hot decoction, as described above. If cold water is used, the shirt is wrung out more or less, according to the purpose for which it is to be worn; the patient puts it on, and is covered with blankets, as already described.\*\*

The patient is left in a cold packing for one-and-a-half to two hours; in a warm one until it grows cold. He will go to sleep — if not at the first application, certainly at the second or third. The wet shirt not only soothes but eliminates disease. If the shirt opens in front, the Kneipp enthusiasts call it a "little Spanish Cloak."

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\* Like all Kneipp's applications, it can be used cold, or it can be dipped in one of the herb decoctions, and worn hot. (For further information regarding these herb decoctions, see a remark on the subject of "Complete Packing," p. 472).

\*\* Kneipp recommends the use of a mixture of water and vinegar in the case of weakly and anæmic persons, in order to obtain a quick reaction, and to increase the flow of blood to the skin. I think considerable caution is needed in the employment of vinegar, because it is an astringent, and by contracting the pores it hinders evaporation.

After it is removed the patient must stay in bed for half-an-hour or an hour, and, in fact, the same treatment is to be carried out as with the Spanish cloak. It is particularly useful for children who are feverish, and might object to the Spanish cloak, whereas a wet shirt can be easily changed until the fever is subdued.

## 9. The Three-quarter Pack.

This is a most valuable treatment, applicable in cases of fever and acute disease, whilst it is of equal advantage in chronic diseases combined with the "Hunger and Thirst" treatment. (See Index.) It greatly resembles the "Complete Packing," but is milder in its action, and is better suited for nervous and excitable persons, who cannot bear to have their arms confined, and for children. It is excellent for internal inflammation, such as inflammation of the brain,

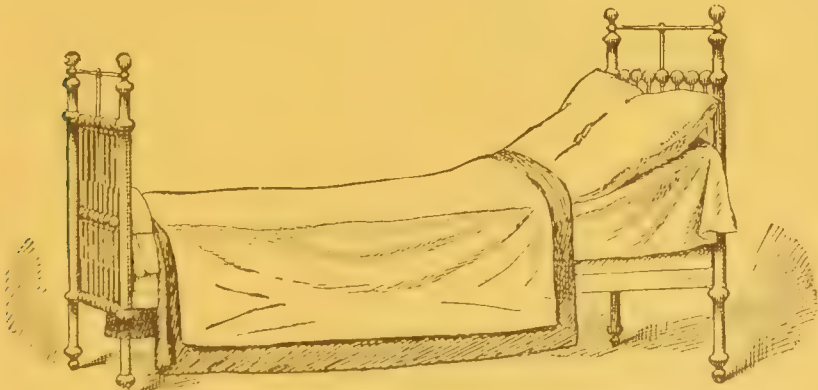


Fig. 52. The Three-quarter Pack. (Open.)

heart, or lungs, and cooling compresses are applied to the affected parts. It is desirable to have an assistant, some rugs (which may be smaller than those used for complete packings), several linen cloths, and water of the required temperature, which is, as a rule, between  $64^{\circ}$  and  $75^{\circ}$  F.

Method. — Take a blanket of about the same length as the patient's body, lay it on the bed, so that the upper edge will reach his shoulder blades. If the blanket is too long, turn it under at the bottom. Upon it spread the wet sheet, which should have the same dimensions, but must not reach quite to the top of the blanket, though it may hang below



it at the foot, and may come ten or twelve inches beyond the patient's feet. (This is not shown on Figs. 52 and 53.)

The preparations for the three-quarter packing are now complete. (See Fig. 52.) The patient now is stripped naked, and laid on the wet sheet, so that it reaches to his shoulders (Fig. 53.)\*

The patient now raises his arms, or crosses them behind his head, and the wet cloth, which has been hanging down on both sides of the bed, is folded first over his body and then round each leg separately, just as in the complete

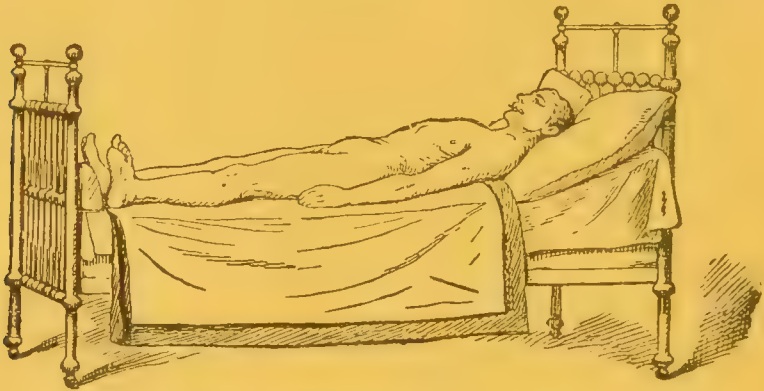


Fig. 53. The Three-quarter Pack. (The patient on the Open Packing.)

packing. (See Fig. 54.) The end of the cloth that extends beyond the feet is drawn together, and laid lightly upon the feet.

Next the blanket is wrapped over the patient from his shoulders to his feet, and tucked well in, first on one side then on the other. The blanket at the end of the bed is folded lengthwise, and tucked under the feet, which must be slightly raised for the purpose. This completes the packing. An eiderdown quilt is laid over the patient and well

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\* In acute diseases very frequently, and always in chronic diseases, when the packing is to last some time and produce a stimulating effect, the patient retains his shirt. This is turned back up to the neck during the packing process, and drawn down again when it is completed, care being taken not to disturb the cloths. (See p. 307.) The specially adapted packings are most useful in such cases, as they do not take up so much room as a common blanket with a coarse wet sheet under it. Where they are employed it is quite easy to draw down the shirt over them, and they are less apt to get out of place, for they can be fastened with safety-pins or hair-pins. In the diagrams the patient is represented as naked, in order to render the explanation of the three-quarter packing more intelligible.

tucked in, especially round his neck and shoulders, or, over the quilt, another sheet or blanket may be laid to keep all in place. The feet must not be cold, but should be warmed either before or during the packing, as is explained in the

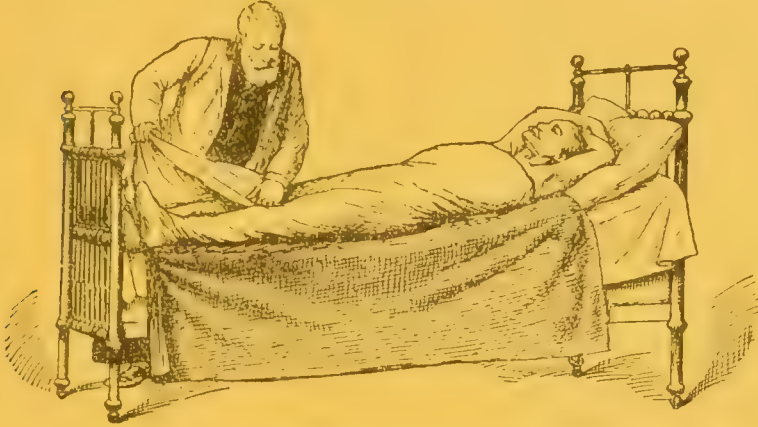


Fig. 54. The Three-quarter Packing. (Showing how each leg is wrapped in the wet sheet.)

Chapter on "Complete Packing." The space between the feet and the end of the bed may be filled with a pillow, but this



Fig. 55. The Three-quarter Packing. (Complete.)

is not represented on the diagram, as a small wedge-shaped cushion takes its place.

### The effect of the Three-quarter Pack.

This is altogether like the effect of the complete packing. If the aim is to stimulate, the wet sheet is well wrung out of water at a low temperature, and several blankets are used

to cover the patient. A dry linen sheet may be laid between the wet sheet and the blankets. If the effect is to be soothing, more sheets are used (from two to four), and these are hardly wrung at all, and fewer and thinner blankets are employed. The three-quarter packing is very useful in treating children whose temperature is too high. As soon as there are signs that a child is sickening for any disease, he should be put into a stimulating three-quarter pack, and left there for two to two-and-a-half hours. As soon as the disease has declared itself another packing may be applied, but this time a soothing one. The same principles underlie the treatment of children as of adults. If a child who is "packed" becomes hot and restless, he must be taken out at once, and packed up afresh, and this must go on until the fever diminishes and he is quiet. If he falls asleep, he must not be awakened; in fact, whenever a sick person, child or adult, sleeps soundly in bed, it is wrong to disturb him for any reason whatever. A stimulating three-quarter packing, or the last of a series of soothing ones, must always be followed by washing or by a bath, but there is no need to wake a patient for this purpose.

It is well to accustom healthy children to a three-quarter pack with dry cloths, for this will prevent them from offering any resistance when they are ill, and they will know that they need not fear the doctor's knife or pincers. It may be necessary to bribe a child to submit to the application of a wet sheet, but in such a case the end justifies the means.

It is not advisable to attempt to apply a three-quarter pack to oneself, in case no assistance is at hand. If the packing process is not properly performed, and the air is not excluded by the blankets, so that the desired result is not attained, there is great risk of taking cold.

Instead of attempting a three-quarter pack, it is better, under such circumstances, to have recourse to a half-pack, or to a leg and loin pack, about which there is no difficulty. (See "Half-Pack" and "Leg and Loin Pack" in Index.)

### **Kneipp's Under-bandage.**

There is no difference between this and the three-quarter pack, and the "under-bandage" is only the outcome of Kneipp's endeavours to bring his remedies within the reach of all.

even of the poorest. He writes as follows, after explaining in detail how it is to be applied:

"Poor people and country folk can manage the whole affair much more simply. Let them take a cornsack that has lost its stiffness through use, dip it in water, wring it out, and then get into it, drawing it up under their arms, as if they were pulling on a pair of trousers. Thus attired, let them lie upon a blanket spread out over a bed, and then roll themselves up in it, and the quilt. Hundreds of people have tried 'sack jackets' of this kind. Do not be alarmed, it will suit you well enough."

This "under-bandage" can be dipped either in cold water, or in one of the hot decoctions already described, and its effect is similar to that of Kneipp's complete packing.\*

The same principles underlie the complete packing, the Spanish cloak, the wet shirt, and the under-bandage.\*\*

## 10. The Half-Pack.

This is applied in the same way as the three-quarter pack, but the body is packed only from the umbilicus (navel) to the feet, inclusive.

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\* It is dipped into a decoction of oat straw, hay blossoms, or fermenting hay, if it is to be used to relieve gout, obstruction of the bowels, etc. A decoction of pine needles is used if it is to cure sharp pain in the abdomen.

\*\* Father Kneipp ordered his patients, when a "packing" had been removed, to stay in bed until the temperature was normal, and excessive evaporation ceased. He writes in his "Will," page 95, as follows: — "I have often been asked whether washing or bathing was inadvisable when a packing was removed, and I have always given the same answer: 'If it were necessary to bathe or wash, I should have added it to my directions. Bathing and washing the whole body is not desirable after a packing.'"

We see that Father Kneipp does not agree on this point with Priessnitz, who ordered a wet packing to be followed under all circumstances by some cooling process. Some patients may be constitutionally robust enough not to be injured by the slow evaporation of the heat accumulated at the surface of the body, for they can bear a considerable loss of heat. Such may follow Kneipp's instructions, especially if they are suffering from some chronic ailment, and are using the stimulating packing. It may also be well to remain in bed and quietly await the cooling of the blood and the recovery of the normal temperature, after one of Kneipp's herb packings, but in cases of acute disease, and where fever is present, the sheets have been applied very wet and have been frequently renewed, I, the Author, recommend some gentle, cooling treatment after the last packing is removed, as I do also where the patient is weak and anæmic. My reasons have been sufficiently stated in the earlier Chapters of the Second Part of this work, and are based upon my own experience of the water treatment.



The patient's shirt is not removed, but turned back, and drawn down again when the process is completed. Each leg is packed separately, as before.

The same principles underlie this method of packing. It is used in its stimulating form in conjunction with other processes belonging to the water treatment, to relieve con-

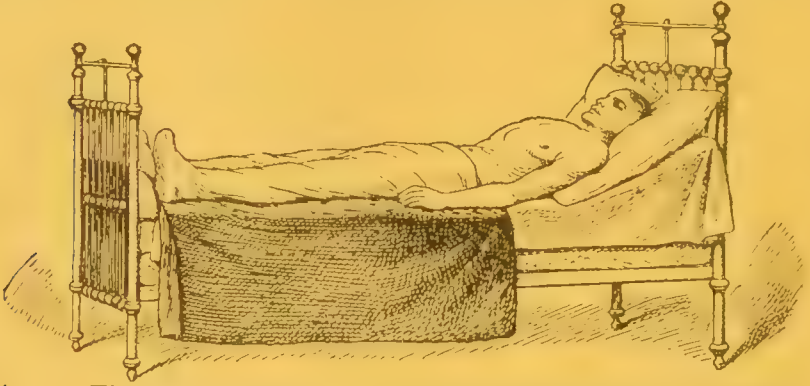


Fig. 56. The Half-Packing. (The patient lies enveloped in the wet sheet on the blanket, which hangs down on either side of the bed.)

gestion in the head and chest, and also to facilitate the expulsion of diseased matter from the abdomen and legs. It is very useful when there is a rush of blood to the head, headache,

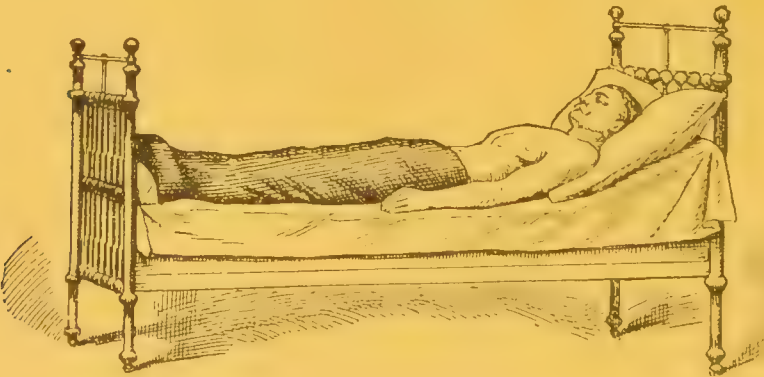


Fig. 57. The Half-Packing completed.

delirium, giddiness, sleeplessness, etc., and also in diseases of the heart and lungs. It is beneficial, too, in the case of swellings on the feet and legs, rheumatic and gouty affections, kidney disease, hemorrhoids, diseases of women, etc., etc. Its action may be increased by applying a stimulating compress to the abdomen, from the umbilicus downwards, when it is specially intended to relieve complaints in that part of the body. The

patient may remain in the half-packing one-and-a-half, two, to two-and-a-half-hours, during which time he must be well covered up, and when it is removed the usual washing or bathing follows.\*

## 11. The Loin Pack.

This is a pack reaching from the shoulders to the hips. A woollen shawl or rug serves as the covering, or a piece of flannel of the requisite size. A table-cloth, or two towels sewn together lengthwise, a sheet folded in four, or a piece of linen or raw silk, serves as the wet cloth, which, like the woollen wrap, must be as wide as the patients' body

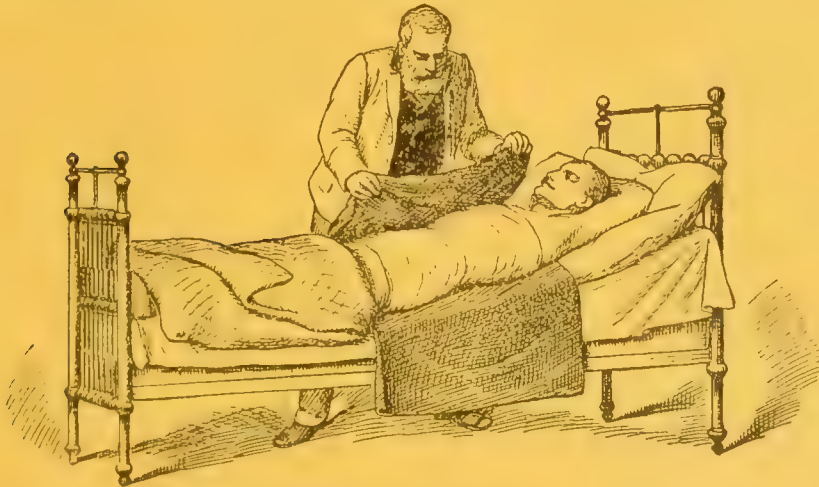


Fig. 58. The Rump Packing. (The attendant puts on the woollen covering.)

(exclusive of head and legs) is long, in fact, the woollen wrap should be a few inches wider, in order to cover the wet cloth properly. Both must be long enough to lie double across the chest and stomach. Three or four safety-pins or hair-pins are required.\*\*

\* The packing cloth may be dipped in a hot decoction of herbs, and wrapped round the patient as hot as he can bear it. This treatment is much recommended for obstructions in the circulation of the abdominal fluids, for œdematous swellings, gout, etc.

\*\* I must here again emphasize the advantage of using the specially made wrappings of the correct size. They consist of an outer covering of pure woollen flannel, not bleached with sulphur, and an inner lining of raw silk, free from all smell. They should be either 24 x 40 inches, 24 x 50, or 24 x 60.

Exactly the same principles underlie the loin packing. The temperature of the water used varies in accordance with the constitution, strength, age and sex of the patient, and the nature and gravity of his disease. As a rule, water is used of a temperature between  $65^{\circ}$  and  $72^{\circ}$  F., or, if the patient is much exhausted, between  $72^{\circ}$  and  $86^{\circ}$  F. The temperature of the room at the time of the application and removal of the packing should be  $65^{\circ}$  to  $68^{\circ}$  F., and the patient's temperature must be at least normal.



Fig. 59. A Safety-pin.

When this packing is to be applied to a patient who is seriously ill, the cloth is dipped in cool, but not cold, water, wrung out more or less, according to the effect it is desired to produce, and spread smoothly on the woollen cover, which should be two or three inches wider than the wet cloth. The packing, thus arranged,

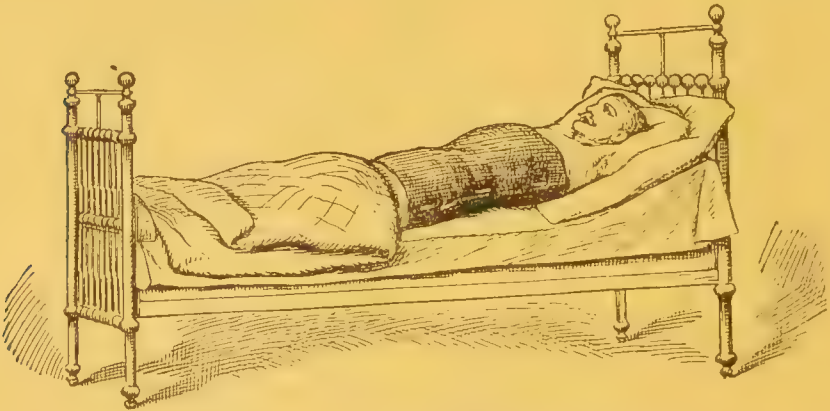


Fig. 60. The Rump Packing, completed.

is laid on the bed behind the patient, who either raises himself, or is lifted into a sitting posture. His shirt is now pulled up, and he is laid flat on the packing, the wet cloth is folded quickly across his chest and stomach, and then the woollen cover (Fig. 58), which is secured by three safety-pins. (Fig. 59.) This completes the packing process. The shirt is drawn down, and the patient well covered up.\*

Nothing is more useful than to have a packing ready for use. In case of illness, people are apt to ransack the house in vain to find what they require, thereby losing much valuable time, and they often end in using something quite unsuitable.

\* Here, as elsewhere in the book, the patient is represented as perfectly naked, but this is only done to render the explanations more intelligible.

Care must be taken to prevent creases in the wet sheet, and to see that it is properly covered by the woollen rug, which needs pulling firmly up at the sides and middle.

If the patient is very heavy and cannot sit up, his shirt must first be pulled up, and the woollen rug pushed under his back on one side of the bed and drawn out on the other. It is pulled perfectly flat, and then a large compress of six or eight thicknesses of linen (a sheet answers the purpose), dipped in water, and very slightly wrung out, is pushed under the patient's back in the same manner. Another compress of the same size, wrung somewhat drier, is laid on the chest and stomach. The woollen rug is then folded over on both sides, secured with pins, and the shirt is drawn down.

Even if the patient's temperature is very high, the compress at his back can often be left for two or three hours, before it becomes hot and needs renewal. In this way he is not constantly disturbed by changing the packing, for this, though necessary, is annoying to anyone who is seriously ill, and yet he is not deprived of the advantages of the treatment. The compress on his chest and stomach can be renewed when required without inconveniencing him, for it can be done without moving him at all. (See "Compress, Upper and Under," in the Index).

Patients suffering from chest complaints are often unable to bear the sense of oppression caused by a thick heavy compress on the chest and stomach. Where this is the case, it is well to use two compresses, one thick and heavy on the stomach, and a lighter one on the chest. Towels are convenient for this purpose.

Delicate persons may often, with advantage to their general health, apply a compress to their chest and stomach, without using one at their back.

A patient who is not seriously ill may get out of bed whilst the loin pack is being prepared. When it is ready he pulls up his shirt, gets into bed, and holds his shirt up until the packing process is finished. The loin packing can be applied by oneself, without assistance, as is shown by diagrams 65, 68, which represent the mode of applying the so-called body bandage.

Where it seems advisable, the wet sheet may be covered by a dry one before the rug is used; this, as has been said, increases the heat, and is permissible only when the packing is to be stimulative.



When the loin packing is removed, unless the patient prefers to stay in bed until his temperature becomes normal, some cooling treatment is necessary, preferably, washing the parts of the body that have been covered.

### Action of the Loin Pack.

A great number of organs are situated within the trunk of the body — the lungs, heart, stomach, liver, kidneys, bowels, and great blood vessels — whose functions will be discussed fully in the Third Part of this work. The great efficacy of this pack is due to the fact that all the blood vessels of the trunk of the body terminate near the navel, and these contain no insignificant proportion of the blood of the body. If they contract under the action of cold, or expand under that of heat, the pressure upon the blood in the whole body is increased or diminished. There are, however, other parts where the blood vessels terminate, for instance, the fingers and toes, and, in fact, the hands and feet altogether. Any means employed to increase or diminish the flow of blood through the skin at these parts of the body affect the organism as a whole. Hence, when the loin packing is used, as is frequently done, in conjunction with the hand and arm, or with the foot and calf pack, we have at our disposal admirable means whereby to exercise a beneficial influence upon the pressure of the blood, its distribution and circulation. We may stimulate it by increasing the heat of the body, or we may diminish it when the temperature is too high. We shall have occasion later to refer again to the arm and leg pack. In the case of chronic diseases, we have generally to aim at warming and stimulating the system. The loin pack that is applied for this purpose diminishes the pressure of the blood in the interior of the body, by expanding the blood vessels situated there, and this increases the action of the skin. The internal organs are relieved of stagnant blood, and can resume their proper functions, and the vital processes are carried on in a normal way, instead of in a sluggish manner. Thus the formation and destruction of the cells and tissues of the body, the expulsion of refuse matter, absorption and assimilation, separation of the serum, &c., all are carried on with more vigour. Diseased matter is stirred up, cast off, and carried away by the ordinary channels, or it is carried by the blood to the surface, and exudes from

the skin. All these and many other beneficial effects follow a stimulating loin pack, which may be intensified by the application of similar packs to the hands and feet. (See Index.)

For a pack of this kind thin cloths are used, which have been well wrung after being dipped in rather cold water. The woollen covering is thick, and the patient remains packed from two to two-and-a-half hours, or if the pack is applied when he goes to bed, he keeps it on until he wakes. Then he takes it off, without uncovering himself, rubs his body with his hands until it is perfectly dry, and goes to sleep again.

When the pack is used in cases of acute disease, to reduce a high temperature, and to allay any excessive oxidation, it is applied so as to cool and calm the whole body. A thick sheet is taken that can be folded in half, or two or three raw silk cloths are laid one upon another, and scarcely wrung out at all. The temperature of the water varies, with the degree of fever, from 65° to 72° F., and only a light woollen rug is used. It is important to apply, at the same time, stimulating packs to the arms and legs, as we are aiming at a withdrawal of the blood from the trunk of the body, and at distributing the blood over the extremities. It is, however, a serious mistake to apply stimulating packs to the hands and feet. If any are used they must be of a soothing and cooling nature, as the extremities influence the body as a whole, and excessive circulation in them increases the heat of the body and aggravates the fever.\* The rules already given for other packings apply equally to the loin pack.

### The Short Bandage, according to Kneipp.

This extends from below the arms to the knees (Fig. 61), and Kneipp says that it is the most important form of packing, and we have already seen the truth of his remark, for it can be used so as to affect the blood vessels of the whole trunk of the body. The short bandage is simply a long loin pack; the method of application is exactly the

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\* If the hands and feet are cold, they may be warmed by means of a hot water bottle wrapped first in a warm, wet towel, and then in a piece of flannel, so that it imparts moist heat. It may sometimes be necessary to use a soothing loin pack, stimulative arm and leg packs, and this moist heat process all at the same time.

same, only the wet cloth must be well pushed down between the thighs. No space must be left between the skin and the wet cloth, and this holds good of every variety of packing and bandaging.

The woollen rug should be two or three inches above the cloth at the top, and four or five at the bottom, in order to cover it well. It is held in place by safety-pins or hair-pins. (Hair-pins are first pushed into the rug, then bent over in the opposite direction and secured.) The patient's shirt is drawn down over the bandage, and he is covered up with a quilt, which must be well tucked in.

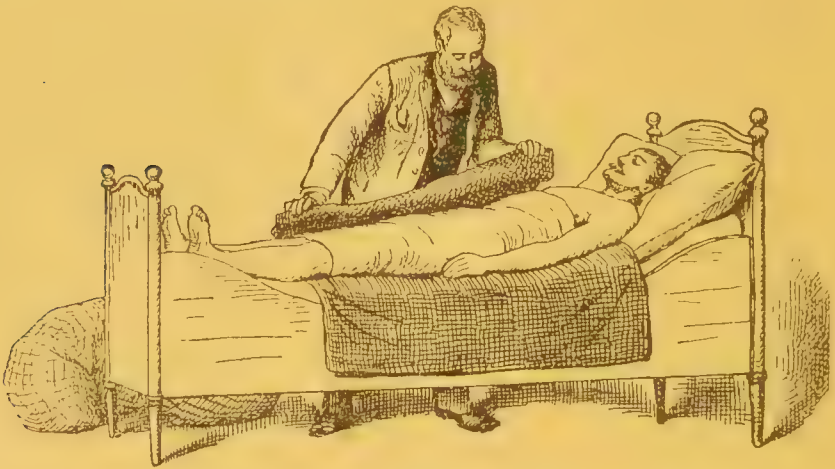


Fig. 61. The Short Bandage, according to Kneipp.

Kneipp's Treatment employs this bandage in three forms, viz., stimulative, sedative, and a hot herb bandage, and anyone who has attentively studied the previous Chapters will have no difficulty in distinguishing them, and in applying them correctly as circumstances require. A stimulative or heating water bandage, like a hot herb bandage, is intended to stir diseased matter into activity, that it may be given off from the system, whilst a soothing bandage aims at moderating fever which is causing a too rapid assimilation, and at healing the diseased organism. Father Kneipp forbade any cooling process after a bandage had been removed. He ordered his patients to stay in bed from half-an-hour to an hour, until the transpiration ceased. The reader already knows my opinion on this subject. I always prescribe some mild cooling process, of short duration, to be applied as soon as the last of a series of soothing bandages is removed.

After a stimulative or a hot herbal bandage, which is, as a rule, only used in chronic cases, Kneipp's order may be obeyed. Yet even then I am inclined to say, that if a cooling process does no good, it certainly does no harm.

## 12. The Body Bandage.

The body bandages introduced by Priessnitz are now known all over the world. Professor Schweninger, Prince Bismarck's medical attendant, says: "No doctor nowadays can dispense with these body bandages, and yet Priessnitz is called an ignorant quack!" (p. 375.)

It is a very simple matter to put on the bandage, either when up, or in bed, and I have described it so fully on p. 176, that repetition seems needless. I will only give the illustrations belonging to the text on p. 176. (Figs 62—71.)

The bandage is dipped in water at a temperature between 65° and 72° F., or between 72° and 80° F. for delicate persons.

For a grown-up person the belt is generally fifteen to eighteen inches wide, and about one - and - a - half yards long. It may be narrower when the

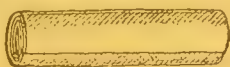


Fig. 62. The Body Bandage. (Showing the raw silk lining rolled up.)

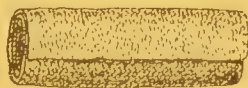


Fig. 63. The Body Bandage. (Showing the woollen covering rolled up.)

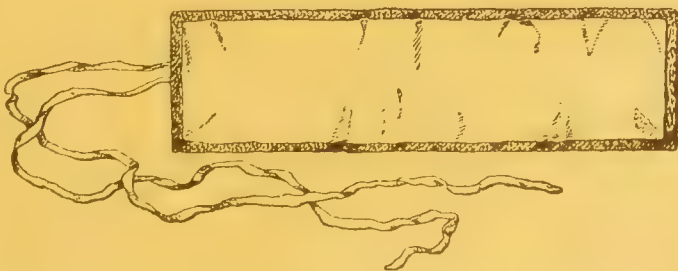


Fig. 64. The Body Bandage. (Showing the woollen bandage unrolled, with the silk lining also unrolled lying upon it. The strings are sewn on the woollen covering.)

belly or the stomach alone is to be affected. The woollen bandage must be two or three inches wider. If no strip of linen is at hand, two towels may be sewn together at the ends, so as to form one bandage of the required length. Dip the cloth to half its breadth in water, wring it out more or less, fold it in half lengthwise and roll it up, the dry half being inside. When it is applied to the body, the wet side is put next the skin, and the dry side covers it. The woollen



band is rolled up in the same way, and is wound round the wet cloth. It is always advisable to roll partial packs (for the neck, chest, leg, arm, foot or hand) before applying them, as this greatly facilitates the process.

### The Effect of the Body Bandage.

This, too, can be applied so as to stimulate or to soothe. As a rule it is used to warm or stimulate the digestive

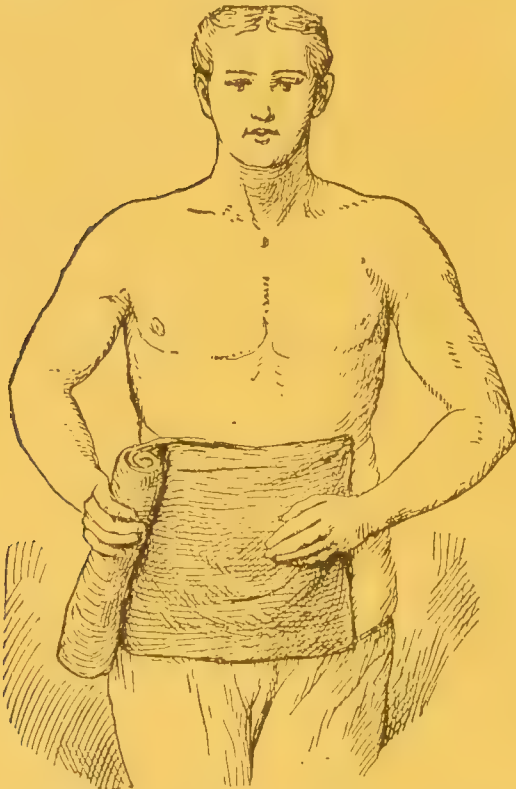


Fig. 65. The Body Bandage. (The raw silk lining has been applied, and the process of laying on the woollen covering is beginning. Both the lining and the covering are being held in place by the left hand.)

organs to a due discharge of their functions. If they act properly, all treatment becomes relatively easy. In its local action the wet bandage causes the blood vessels in the skin to contract, and as it affects the great blood vessels in the interior of the body, its results are not merely local, but are felt all over the body. When the bandage grows hot, these same blood vessels relax and expand, under the influence of the heat generated, and it is possible both to see and feel that the blood leaves the interior and comes to the surface, first round the abdomen, where the bandage is worn, and then over the whole body. The reader has already learnt that the vapours exert a soothing influence upon the ter-

terminal nerve ends, and, through the nerves, upon the brain, and upon all the nervous centres of the body. The warmth also tends to loosen and expel diseased matter.

It is scarcely necessary to repeat that these effects are intensified if the cloth is dipped in cold water, and well wrung out, whereas, if it is left very wet and more thick-

nesses are used, it tends to withdraw heat, and has a cooling and soothing effect.

The body belt acts beneficially upon the digestion and upon all the organs concerned with it. If it is worn for some time, as it may be, with due precaution, by day, or in bed at night, it brings about a crisis, with discharges which sometimes completely discolour the bandage, and are of so acrid a nature as to rot it. The smell of these discharges is sometimes so penetrating and repulsive, that it is difficult to remain near the patient. The elimination of diseased matter may be accompanied by a rash, consisting of very small pustules, grouped in rings on the parts of the abdomen which are covered by the bandage. This rash occurs frequently when chronic disease of the abdomen is present, and in diseases of women, and it often happens that when it has died away, the patient is relieved of most unpleasant symptoms. Much perseverance is necessary, and the bandage may have to be worn every night, or both by day and by night, for weeks, and even for months in succession.

It sometimes happens, that when a stimulating bandage is applied, the skin remains cold and bloodless, the bandage consequently does not become warm, and the patient is cold and shivering instead of being warm and comfortable. (This may be the case with any partial pack, and not only with the body bandage.) This coldness is due to the absence of reaction, which may be constitutional, or may be ascribed to some mistake in the application of the bandage. It may have been applied when the patient's skin was chilled, or it may have been too wet, or the water in which it was dipped

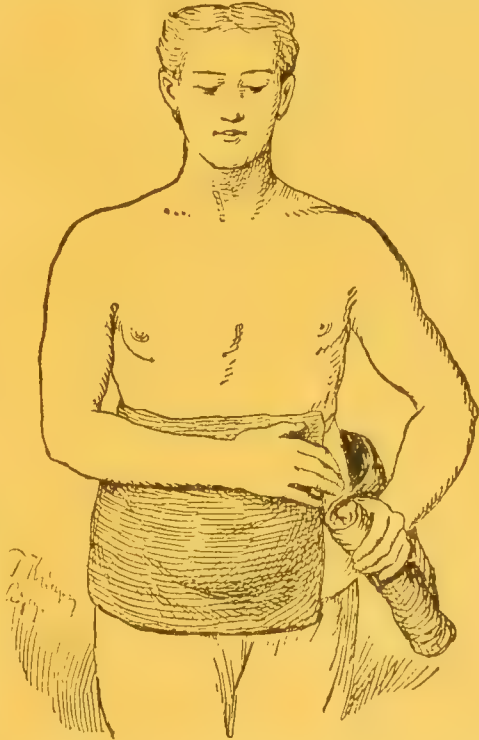


Fig. 66. The Body Bandage. (The woollen covering is brought round the body with the left hand, the bandage being held fast with the right hand.)

may have been too warm, or the bandage may have been laid on too loosely, so that air has been admitted, or the woollen covering may be too thin and not well fastened.

It must on no account be kept on if it does not get warm, but should be removed at once, and if the patient's temperature be normal, the cloth must be dipped in very cold water, wrung out well, and carefully replaced, covered first with a dry cloth, and then with an extra thick woollen wrapper. As a rule the desired reaction will speedily set in.

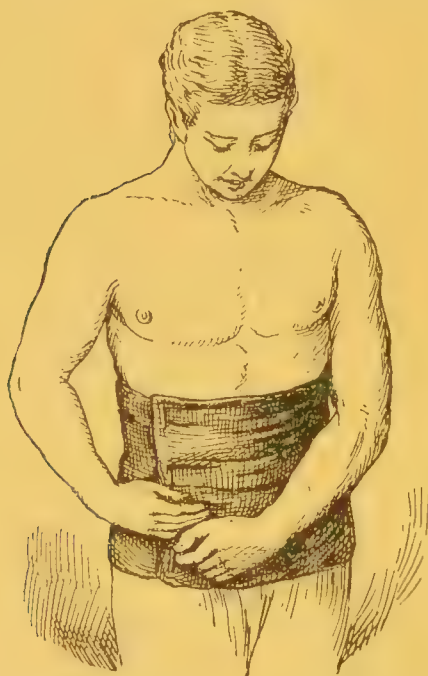


Fig. 67. The Body Bandage being fastened with safety-pins, the third being put in with the left hand.

If it is absolutely necessary to secure a reaction, the skin may be rubbed until it is red before applying the wet compress. Either wet or dry friction is permissible. People in tolerably good health may, with great advantage, wear the body bandage two or three nights every week to ward off disease.

If it is desirable to act particularly upon the stomach or abdomen, a compress of four to eight thicknesses of linen, well wrung out, may be applied before the bandage is put on. The use of the bandage cannot be too highly recommended to those who suffer from nervous and "imaginary" complaints, from piles and digestive troubles, also to people who lead sedentary lives, or who are disposed to hysteria and hypochondria.

For little children, one or two linen handkerchiefs, or a strip of linen, may be used, although the neck bandage, as made for adults, is more satisfactory. The raw silk bandage measures four to five inches in width, and is from one to one-and-a-half yards in length. It is well to arrange the necessary bandages for children whilst they are in good health, and to keep two or three neck, chest, and leg bandages always ready for use. They form the first item in the domestic medicine chest. Stimulating bandages for the stomach are invaluable in treating children, and often cut short at once any ailment that suddenly appears. As a

rule the application of the bandage gives relief at once, for, with children, most complaints attack the respiratory or the digestive organs. Generally, too, no further remedies are necessary, and no harm results from its application if it is properly put on, when the child is warm in bed, and renewed as soon as it gets hot. It often serves to cure, in a painless fashion, such diseases as diarrhœa, constipation, cough, croup, sore throat, headache, etc.

If a little child cannot sleep — it is a mistake to assume that children refuse to sleep — apply a stimulating body bandage, which must of course not be so thick as that for an adult. If he is excited and feverish, it is better to put him into a soothing three-quarter pack. In diseases accompanied by an eruption, stimulating bandages on the stomach have an excellent effect, provided that they are changed as soon as they get hot. They increase the activity of the skin, and allow the rash to come out freely. In the Third Part

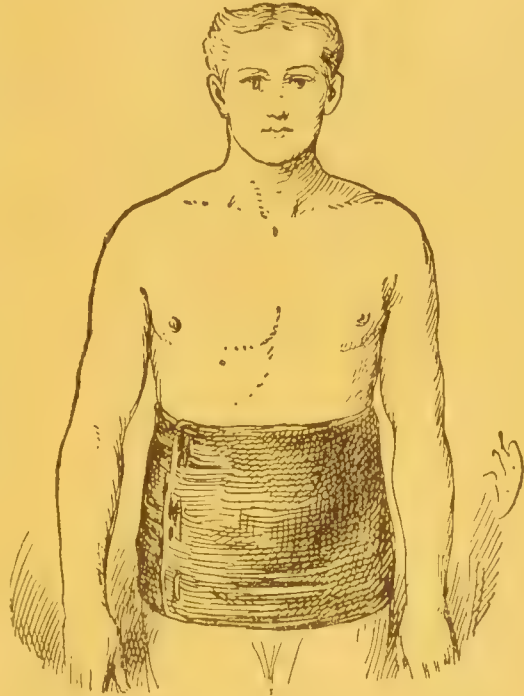


Fig. 68. The Body Bandage completed.

of this book the various diseases will be discussed in alphabetical order, and I shall often have occasion to refer to the stimulating body bandage. For the present, therefore, I will only add one more remark. There is no complaint, either of adults or of children, in which the application of the stimulating body bandage is injurious; on the contrary, it proves beneficial whenever it is used.

### Abdominal Compress, according to Kneipp.

This is a thick linen compress, reaching from the umbilicus (navel) to the hips. Weak and excitable patients can bear only two to four thicknesses of linen, but six to eight



thicknesses are not too much for stronger persons. It is left on from one to one-and-a-half hours, but not longer, and must then be removed or renewed. The temperature of the water is generally between 65° and 72° F., but it must be adapted to the strength of the patient. The compress is wrung out more or less according to the effect which it is to have, and the thickness of its covering also varies, or it may not be covered at all. Sometimes it is ordered to be



Fig. 69. The Body Bandage put on by another person.  
The silk compress is underneath.

dipped in a hot decoction of hay flowers, oat straw, or pine needles, allowed to stand a few moments, and applied as hot as the patient can bear it.

The effect of both the hot and the stimulating compress is to dissolve and expel diseased matter. It is therefore very suitable in cases of stoppage of the

bowels, piles, constipation, irregular or painful menstruation, sexual diseases, etc.; also in diseases due to bad circulation, and nervous prostration, hysteria, etc. Most of these complaints originate in the accumulation of diseased matter in the abdomen, and in functional derangement of the digestive and sexual organs. As soon as the cause of a disease is removed its symptoms disappear.

Kneipp said that this form of compress is particularly valuable in dispersing tumours and swellings in the interior of the body. The "short bandage" is not local enough in its effects, and may do harm if used too often; but when a compress is laid on hot again and again, it increases the

heat, whereas repeated cold applications diminish excessive internal heat.

The soothing compress should be used in cases of inflammation of the bowels, etc.

Kneipp maintained that a compress dipped in vinegar and water, and well wrung, has a particularly warming

effect, whilst one applied very wet, and renewed as soon as it grows hot, is more efficacious in withdrawing heat than one dipped in plain water.

Compresses on the abdomen are often used in conjunction with other applications, such as stimulating leg packings, sitz baths (with or without friction), vapour baths in bed, or applied to the feet. The enemy, viz., the disease, must be attacked in various quarters if we are to conquer it.



Fig. 70. The Body Bandage. The patient in bed, on the Open Body Compress.

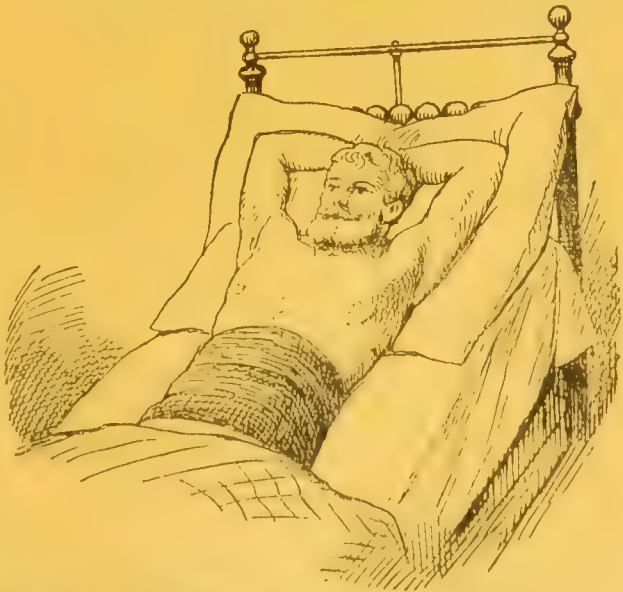


Fig. 71. The Body Bandage. The patient in bed, with Closed Body Bandage.

### 13. The Cross Pack.

The cross pack, or T bandage, is used chiefly in cases of sexual disease. The bandage is depicted in Fig. 72. For an adult it is about sixteen inches wide, and from one-and-a-quarter to one-and-a-half yards long. At the middle of one side of both the linen or raw silk, and the woollen bandage, a strip of the same material is sewn on, measuring five or six inches in width and twenty to twenty-five inches in length. The woollen bandage must everywhere be an inch or two larger than the inner one. The cross bandage can be applied when the patient is up, or when he is in bed. If the latter, the instructions given on p. 176, for applying the body bandage,

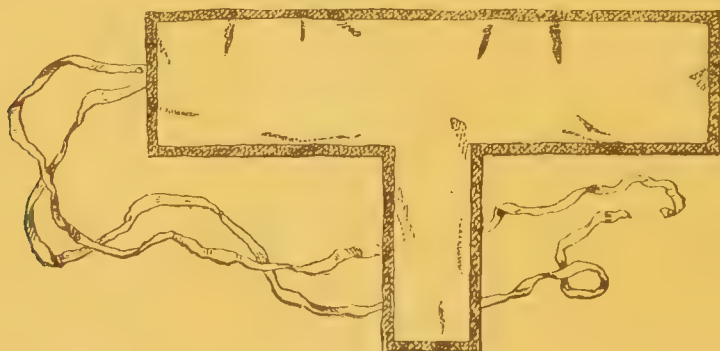


Fig. 72. The Cross Pack. (Unrolled woollen covering with silk compress.)

must be carried out. The strip sewn on to the main bandage must be laid flat, pointing towards the foot of the bed. The patient lies down on the prepared packing, pulls his shirt up to his armpits, draws the cross piece up between his legs and lays it on his stomach. Then he folds the wet bandage, that is hanging down on each side of the bed, over the cross piece, so that there are two or three thicknesses upon the stomach. Next he draws the cross piece of the woollen covering between his legs, and lays it on the wet cloth (Fig. 73), and then crosses the side pieces of the rug, finally making all firm with strings, safety-pins, or hair-pins, as is done in applying the body bandage. Fig. 74 represents the cross packing when finished. The shirt is drawn down, and the patient covers himself up well in bed.

It is important for the cross piece to be held in place by the body bandage, and it must therefore be fairly long.

If its effect is to be intensified, a compress of two to four thicknesses of linen, wrung more or less dry, may be applied under it. The temperature of the water is, as a rule,  $65^{\circ}$  to  $72^{\circ}$  F., but, under certain circumstances, it may be  $75^{\circ}$  to  $82^{\circ}$  F.

No particular directions are necessary for putting on the bandage when the patient is up.

This cross pack, both stimulating and soothing, is widely used in the treatment of sexual complaints. Diseases of the womb, prolapsus, polypus, cysts, swellings, hardenings, inflammation, and other diseases of female organs, call for the cross pack treatment.

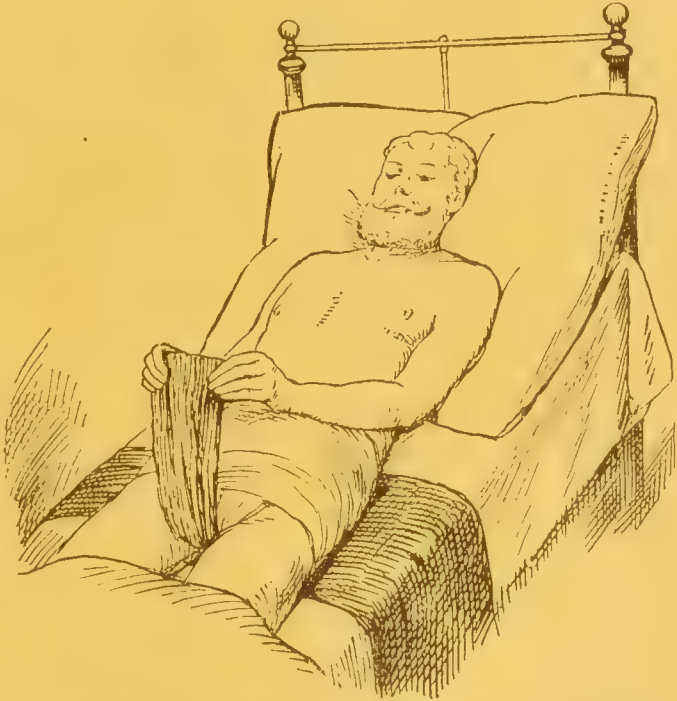


Fig. 73. The Cross Pack. (The patient drawing the lower part between the legs, to fold it over the stomach. The silk compress is already on.)

The nature of the complaint and the state of the patient will at once suggest which form of pack is preferable. If inflammation is to be produced, and a chronic state rendered acute, the stimulating treatment is necessary, but if inflammation is to be cured, the soothing packing is better. It may, for instance, be necessary in some chronic female diseases to apply the stimulating packing every night. Its use is governed by the same principles that have been so often explained with reference to other packs. When it is dry it must be taken off, and, unless it is renewed, some cooling treatment may be applied, or the patient may remain in bed until she regains her normal temperature, merely



rubbing the parts where the bandage has been applied with her hands until they are dry. If the stimulating treatment brings about a crisis, all her symptoms will be aggravated, and she will apparently grow worse, for the malady is passing from a chronic to an acute state, and as long as this is the case it will be well to use the cross pack in its soothing form.

The cross pack is very beneficial in diseases of men, of long standing, for instance, in strictures, and here, too, the stimulating pack may have to give place for a time to the soothing. It is useful also in cases of fresh infection, and

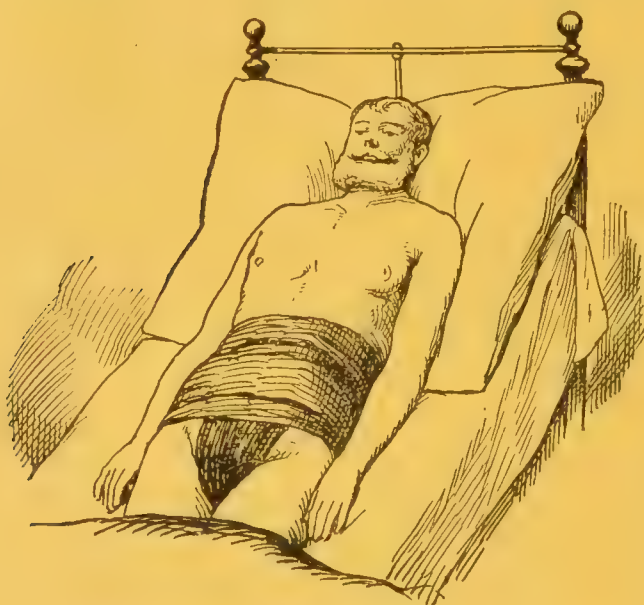


Fig. 74. The Cross Pack completed.

in that very common complaint known as involuntary pollution, as well as in weakness of the sexual organs (sexual neurasthenia).

It is often combined with other applications of water, such as washing, friction, baths, etc., and in diseases of women, in addition to syringing the vagina with water at 82° to

90° F. In its success, the cross pack rivals the triumphs of modern surgery. It destroys internal and external growths on the sexual organs in a mild and safe manner, without any probing, burning, or cutting; and it destroys the disease, and not its outward manifestations, which is generally all the result of a surgical operation. Naturally the cross pack, which has a peculiar action of its own, as well as the general action of the body bandage, may be used with great benefit in the case of diseases that are more or less connected with those of the sexual organs. Such are diseases of the bladder and kidneys, functional derangement of the lower bowel, etc. The sitz bath has a very similar effect, and in Division II.

of the Second Part I shall discuss its advantages, and show that, by using the cross pack, the same results may be obtained in a less exhausting fashion.

If the cross piece is used chiefly for purposes of cooling and soothing, it will need very frequent renewal, and therefore in such cases it is well not to sew it on to the body bandage, but to fold it in with it. Of course, when this is done, the cross piece must be long enough to be kept in place by the bandage, both at the back and at the front.

#### 14. Shoulder and Chest Pack.

These are used in diseases of the chest, where the lungs, air passages and bronchial tubes are to be affected

The shoulder pack is very simple. A towel is chosen, not too long, and is more or less wrung out, after being dipped in water. It is then passed behind the shoulders, the ends are carried over the chest, and covered with a woollen cloth, which is kept in place by a safety-pin.

The towel may be folded in half, lengthwise, so as to form a strip five or six inches wide. The chest must be covered by it as far as the breast.

Ready-made shoulder packs can be bought, with a raw silk lining, measuring a yard long and a quarter-of-a-yard wide.

The shoulder pack is always used in conjunction with a loin pack or a body bandage. The shoulder pack is put on first, so that the ends of the woollen covering are held in place by the bandage round the body. (Fig. 75.)

The chest pack (Fig. 76) is longer and broader than the shoulder pack, but it is applied in the same way, only the



Fig. 75. The Body Compress and Shoulder Pack.

ends, after being crossed on the chest, are pinned together behind the back. The woollen covering must be put on carefully, so as to cover the wet cloth entirely, and then the body bandage is put on.

A ready-made chest pack is about sixteen inches wide, and four, five, or six feet long.

The so-called "Scotch bandage" combines the chest and body bandages. It is applied in the following manner: Two towels are sewn together at their ends, wetted and laid round the chest and stomach, so that the seam rests on the centre of the body. They are then crossed behind the



Fig. 76. The Chest Pack.

back and passed over the shoulders, where they are again crossed and tucked under the bandage that is already in place. (Fig. 77.) The woollen cover is put on in the same way; it must of course be broader and longer, so as to cover the wet cloths completely. The ends of it are well tucked in, and a safety-pin is used to secure all; it is put rather high on the chest. (Fig. 78.) A ready-made Scotch bandage is generally sixteen inches wide and two to two-and-a-half yards long.

This form of pack is very useful in complaints of the respiratory organs, also in the treatment of children suffering from catarrh, inflammation of the lungs, croup, whooping-cough, etc. For children it is often advisable to halve the bandage, and to use the two parts in combination with the loin or body pack. Apart from the fact that it is easier to avoid creases in applying a smaller bandage, this plan has the further advantage, that each half can be renewed separately when necessary. The mode of applying the bandage in two parts is this: Take two towels, fold them, lengthwise, into two or four parts, so as to have a strip four to eight inches wide; wet them, and lay one over each shoulder; cross them both in front and at the back, and cover them with the flannel

bandage, which must also be in two parts, and should be somewhat longer and broader than the folded towels. It is well to have the flannel double, in order to increase the effect of the packing. The strips are pinned together at the throat and back (Fig. 78), and then the loin or body pack is put on in the usual way.

When the divided bandage is to be applied to a child, the loin or body pack is first prepared. Then he sits up in bed, and the pack is laid behind him; his shirt is taken off, the two wet strips are laid on his shoulders, crossed back and front, then covered with the flannel; next he is laid flat on the body pack, which is put on in the usual way, and fastened with three safety-pins. Care must be taken to see that the four ends of the flannel shoulder strips come below the body bandage, and are held in place by it. If they are too short for this, the loin pack must be used, as it comes higher up the body than the body bandage. If, however, the ends are long, either form of pack may be used, as seems better to suit the requirements of the case. When the pack is finished, the flannel covers are secured by safety-pins at the throat and back of the neck.



Fig. 77. The Scotch Bandage.

When the wet shoulder and chest pack needs renewal, the packing round the body must be loosened and laid back upon the bed, and the child is raised to a sitting posture. The shoulder pack, chest pack, and Scotch bandage can all be applied so as either to stimulate or to soothe, and their action upon the organs of the chest resembles that of the other packs upon those of the abdominal cavity.

In chronic lung complaints it is necessary to disperse the disease and cause the injurious matter to exude, and this is more or less necessary in all diseases of the chest,



where the circulation must be increased in order that the blood may carry away the diseased matter. To effect this,



Fig. 78.  
The Scotch Bandage completed.

stimulating applications are necessary. The temperature of the water into which the cloths are dipped is, as a rule, between 68° and 72° F., and the pack is left on two or three hours, its removal being followed by some cooling application of water. Chest and shoulder bandages are used in the soothing form in cases of acute inflammation; they serve to draw the blood to the skin, thus relieving the congestion in the important organs of the interior; any tendency to cough is diminished, the phlegm is loosened, and the breathing becomes easier.

The soothing bandages are dipped in water of a temperature between 68° and 78° F., and are changed as soon as they grow hot. On the removal of the last of a series of packs, the parts which have been covered must be washed with water of the same temperature.



Fig. 79. The Shawl open.

All the bandages described in this Chapter, whether they are applied to the chest, shoulders, or back, must be used always in conjunction with packs applied to the legs, calves, or feet. The reader's attention is drawn particularly to this fact.

### Kneipp's Shawl.

This consists of two squares, the inner one of coarse linen, the outer one of flannel. They measure roughly about

a yard square, but the flannel one must be about four or five inches larger.

The shawl is represented open on Fig. 79, and folded on Fig. 80; it is put on as a neckerchief, and covers the neck, shoulders, and the upper part of the back and chest. It is dipped either in cold water ( $65^{\circ}$  to  $72^{\circ}$  F.), or in a hot decoction of shave grass, oat straw, or hay flowers, wrung out more or less, and put on, being covered with the flannel square, the ends of which are crossed on the chest, and pinned or tied together at the back. (See Figs. 81 and 82.)

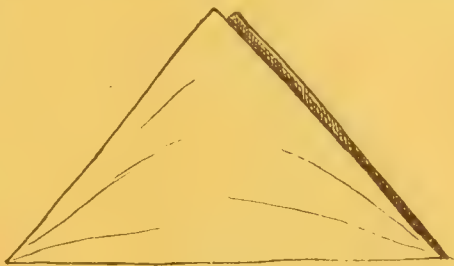


Fig. 80. The Shawl folded once.

If the shawl is to have a stimulating effect, it is dipped in colder water and wrung drier, and it may be worn as long as it is comfortable, though its effect is greater if it is changed, and not worn for so long at a time. It is very useful in withdrawing blood from the head, and so may be applied to stop bleeding from the nose, and in cases of congestion of the brain, inflammation of the eyes and ears, etc.\*

The use of the shawl is governed by the same principles as that of the chest and shoulder bandage.



Fig. 81. The Shawl seen from the front.

The hot herb shawl tends to break up and disperse diseased matter; it is left on until it grows cold, but the decoction must be kept hot, as the application must be renewed two or three times.

\* The reader will know by this time, that when blood is to be withdrawn from any important organ, stimulating treatment must be applied to the parts of the body towards which the blood is to be directed, whilst cooling and soothing treatment is applied locally where the congestion exists.

I must again emphasise the fact that the use of the wet, cold shawl is generally combined with that of the body bandage, and always with leg, calf, and foot packs intended to attract the blood to those parts of the body.

## 15. The Head Pack.

This is generally applied in the stimulative form, although its undeniably good effects are still far too little known. In



Fig. 82. The Shawl from behind.

cases of anæmia and nervous exhaustion, headache is not due to any rush of blood to the brain, but, on the contrary, to want of blood, and to morbid contraction of the blood vessels. In nervous headaches the head bandage is invaluable.

The warm moist vapour produced on the skin of the head makes the blood vessels relax and expand, and soothes the nerves. The bandage is put on when the sufferer is going to bed, and worn until he awakes.



Fig. 83. The closed Head Pack.

Its application is very simple. A towel well wrung out of cold water is wrapped round his forehead and head, and covered with a thick woollen cloth, worn either like a turban, or as represented on Fig. 83. If the latter plan is adopted, it must be tried on the head before the wet cloth is applied, and its corners knotted, then, when the wet towel has been put on, it will fit closely and remain in place. When the packing is removed, the head may be rubbed with a damp cloth and then dried. The head

bandage is used in conjunction with the stimulative body packing, as well as with leg, calf, foot, arm and hand packs.

In order to cool and soothe the head, thick, cold, wet compresses or bandages (see Index) may be applied to it, as well as to the neck and throat, being renewed as soon as they are hot. In fevers the head may be cooled by wetting it every four or five minutes with water of a temperature between  $60^{\circ}$  and  $70^{\circ}$  F., which is not to be dried, but allowed to evaporate, as this process produces cold.

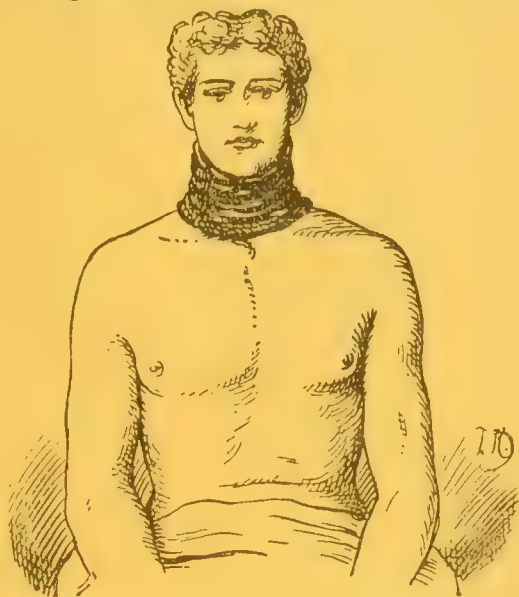


Fig. 84. The closed Neck Pack.

### Kneipp's Head Bandage.

There is no difference between this and the above-described pack. Kneipp writes of it as follows:

"The head bandage is useful when the headaches, in consequence of rheumatism or of an excessive accumulation of blood, cannot be dispersed by other means." This treatment must be used with great caution in complaints affecting the brain, for as soon as a bandage has too strong an action in withdrawing the blood, excessive weakness is apt to result.

## 16. The Throat Pack.

The throat pack, or, as it is also called, Priessnitz's throat bandage, is almost as widely known and used as the body bandage. It is frequently ordered for affections of the throat and uvula, for hoarseness, coughs, croup, enlarged tonsils, diphtheria, etc, but the great mistake is often made of using it alone, and not in conjunction with stimulating packs applied to the body, legs, calves, etc., which are intended to withdraw the blood from the congested parts.



The packing consists in winding round the throat a wet towel or napkin, covered by a woollen bandage, or, better still, a piece of "raw" silken material, about eight inches wide and three feet long. The woollen covering must be broader and longer than the towel or napkin. If no compress is available, fold a towel four times lengthwise, using a shawl or any woollen wrap rather longer than the former. (Fig. 84). The temperature of the water for this neck packing should begin at  $15^{\circ}$  to  $18^{\circ}$  R. =  $66^{\circ}$  to  $72^{\circ}$  F., and up to a possible  $22^{\circ}$  R. =  $81^{\circ}$  F.

The tonic throat compress is used where toxins must be eliminated and thrown off from the system; also for swellings, abscesses, croup, laryngitis, etc. The warm moisture and vapour expand the blood vessels, the blood brings with it to the surface all that must be expelled, and the inflammation subsides. If necessary, the compress may be repeated.

The soothing compress is thicker and wetter; it is not enclosed within another wrapping, and must be changed as soon as warm.

All the ordinary rules of the packing system apply to the throat compress, only it must be given in combination with a trunk, leg, calf, or foot pack.

### Throat Pack, according to Kneipp.

This corresponds with the above-mentioned pack:

It affects the head and the body, writes the worthy Father Kneipp, since it prevents communication of extraneous matter from the body to the head. If there is a considerable rush of blood to the head, the throat pack will be of no use in bringing the blood down; a foot or leg pack would be required, or a cold compress on the abdomen. Anyhow, it must be drawn downwards. The throat pack absorbs some of the excess, and ejects it by frequent change of compresses.

For cases of inflammation of the throat, anyone with a little experience may derive benefit from a throat pack, but unless it is properly done it had best be left alone. Inflammation in the throat implies a rush of blood or a congested state; then, as soon as the compress becomes heated, it attracts more blood, and the condition becomes worse. To do any good, therefore, the compress must be soaked in the coldest water possible, and be changed every ten minutes. It is wiser, really, to place cold applications on the abdomen

as the blood will then leave the upper part of the body, and the congested state of the throat will correct itself; or the feet and calves may be packed, with the same result.

## 17. The Leg Pack.

This covers the leg half-way up the thigh, but the feet are not enveloped. This is done in the same way as every other packing. A suitable woollen wrap, of the size required to envelop the leg twice, is spread on the bed or table, and over this the wet compress, a little smaller than the outer one. Throw back the covering and slip the prepared bandages under the leg of the patient, wrap the wet cloth round first, then the woollen one, fastening them with a safety-pin.

Do the same for the other

leg. In Germany these leg bandages

are to be bought ready for use, but

they are equally well made at

home. This pack, used as an irritant

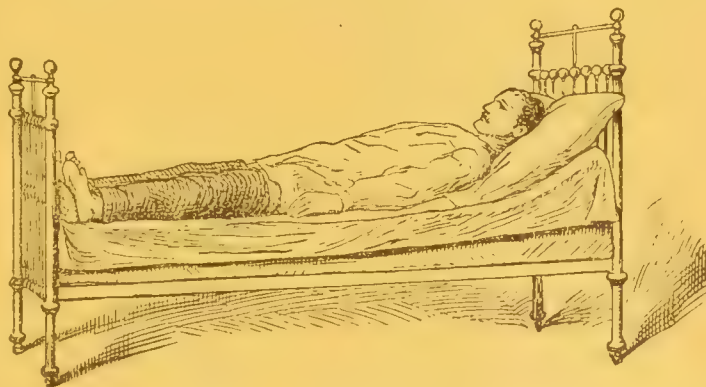


Fig. 85. The Leg Pack closed.

in acute fever, has a cleansing, diverting, and soothing effect. It works equally well in chronic complaints, in which there is congestion, giddiness, headache, faintness, throat, lung and heart troubles. It absorbs toxic substances which may be located in the legs, and is excellent for the removal of gout, rheumatism, varicose veins, etc., and is used under the same conditions as other packings. The only thing to remember is that it must never be applied to one leg only; even if the mischief affects but one, both legs must be "packed," and the bandage may not be left on the one limb after the other has been unpacked.

The average temperature of the water is lower than that used for the body, viz.,  $14^{\circ}$  to  $16^{\circ}$  R. =  $64^{\circ}$  to  $68^{\circ}$  F.

## 18. The Calf Pack.

This, like the former, is applied as an irritant, as it affects the most important internal organs. But an inflammatory condition of the thigh or the calf, abscesses, etc., may also derive a cooling effect from it.

The calf pack is widely used as an exciting factor; it is so simple, that detailed description would be superfluous.



Fig. 86. The Calf Pack. (The wet silk compress is already on, the attendant rolling the woollen covering round.)

Fig. 86 shows the proceeding, and Fig. 87 the completed arrangement. Coarsely-knitted woollen bandages, about three-quarters of a yard long, are especially recommended when it is to remain on all night. They can easily be made by cutting the foot from an old stocking, and dividing it lengthwise; several stockings sewn together at the ends make a good bandage. A cotton stocking leg is the best thing for the wet bandage. This is a most useful application, for when the vessels in the foot expand, and induce more rapid circulation, the whole of the body will be benefited thereby.

Its object is to remove causes of congestion in the head and upper part of the body, and it is used alone, or, according to circumstances, with other local packs.

The principles are similar to those which govern all other packings. Cold feet do not preclude its use, but they should be kept at a comfortable temperature during this period, by means of a hot water bottle with a moistened cloth wrapped round it.

According to Kneipp, herb infusion may be used with this pack instead of water. He himself wrote:

"When walking long distances my feet became uncomfortably warm. I dipped a cloth in water, wrapped it round my calf, doing the same with another one, and in a short time fatigue and heat disappeared. Sometimes I renewed the application two or three times a day.

"One fairly long strip of linen does the whole business, as one end can be damped, and the dry part forms the covering; or an old stocking may be used.

"This packing is beneficial in cases of poverty of blood, and to those who generally suffer from cold feet; the warmth produced by the bandage gives renewed vitality to the feet."



Fig. 87. The Calf Pack closed.

## 19. The Foot Pack.

If a small compress is applied to the middle of the leg, all the vessels up to the heart become expanded, whilst those below the bandage contract. In order to improve the circulation, and draw more blood down to the whole of the leg, the bandage must be extended, or transferred to the lowest part, so that all the vessels may be affected. If the



part chosen for the compress lies not on the course of certain veins, but where it ends, the result will affect the body, and be much more effective to the whole system.

As we already know, the principal vessels end in the rump, in the region of the navel, in the hands and in the feet.

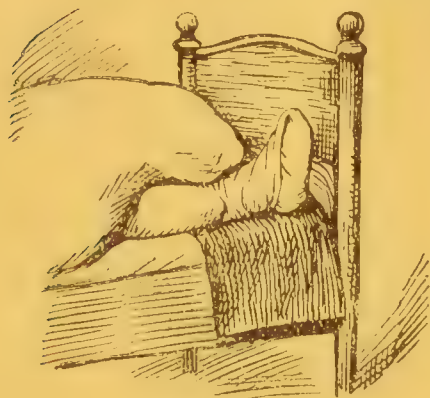


Fig. 88. The Foot Wrap. The Wet Pack.

The "stimulating" foot pack expands them all, the "soothing" form contracts them.

Wet cotton socks are the most useful for compresses, more or less wrung out. Headaches, pains in the eyes and ears, proceeding not from a congested state, but from lack of blood, are relieved by the "stimulating" pack used in combination with body or head

packs. It is well to apply them at night, leaving them undisturbed till the morning. Cold feet preclude the use of the compress without previous warming; otherwise, the principle is the same as in all former cases.



Fig. 89. The Arm Pack. The wet compress is on.

Kneipp favours a "packing" in which the whole of the foot, including the ankle, is packed in a serviette or towel, brought twice round. (Fig. 88.) It is then well fastened up in a woollen covering; the soldier, who has probably had occasion to wear bandages, makes a good operator. Of course the woollen substance must always exceed the inner one in size.

"This bandage disturbs and encourages the elimination of all toxins, especially when the feet have been neglected." (Kneipp.) Herb infusions may be used warm, instead of water. An infusion of shave grass is, according to Kneipp, most beneficial for the dispersal of displaced substances. The

bandage may be left on from one to two hours, and its efficacy will be increased by renewing it after the first hour.

## 20. The Arm and Hand Pack.

In acute cases, such as inflammation affecting the lungs, the heart, breathing organs, etc., the "stimulating" arm pack works very successfully. (Fig. 89.) It is very important that the wrist should be included, and, indeed, treated to a special compress. The wet wraps must be frequently changed.

The hand pack (Fig. 90) has the same effect as described in the Part dealing with the "foot pack." The



Fig. 90. The Hand Pack. The wet compress applied.

same rules apply here, and, in accordance with the remarks made concerning the legs, one arm or hand must never be packed alone.

## 21. The Upper Compress, according to Kneipp.

Fig. 91 shows Kneipp's packing of the trunk. It differs from others in that it consists of one thick compress (a coarse folded sheet) reaching from the neck to the "lap," and completely covering the intervening parts of the body. It must be broad enough to tuck in under the back, before the woollen covering is brought round.

The compress should be thicker or thinner, according to the case under treatment; from three to ten-fold, quite cold or nearly so, more or less wrung out, applied once, or frequently renewed, etc., as may be deemed desirable.

For the manipulation, see the Chapter on the "Rump or Body Pack;" otherwise, the same rules hold good. Be very careful, however, to completely exclude the air. To ensure this, it is wise to have a second woollen wrap to tuck in at the neck. When the wraps have been fastened with three safety-

pins, place an eiderdown over the patient, tucking it under him. When the compress is removed, a cooling process



Fig. 91. The Upper Compress. The wet covering is already on. This shows the woollen covering being fitted.

may be advisable, or the natural warmth of the body will assert itself if the patient remains in bed. Let the window

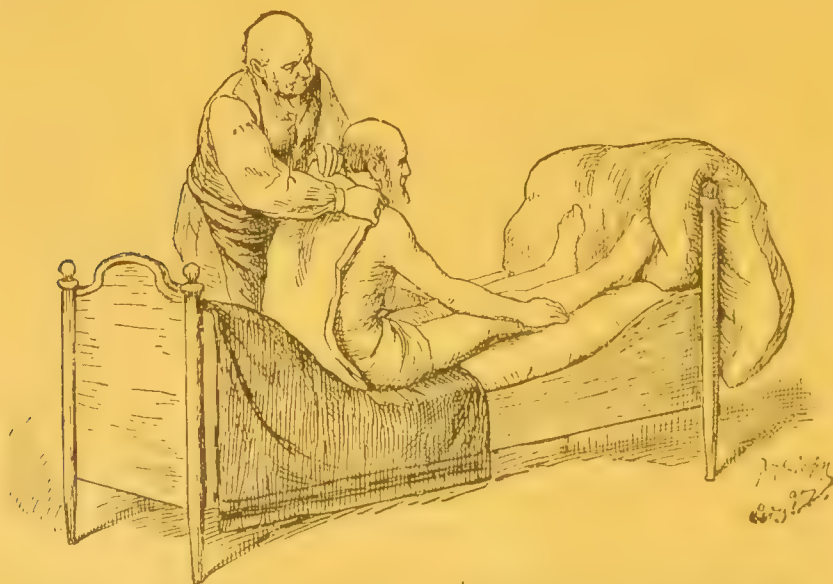


Fig. 92. The Under Compress. Putting on the wet cloth.

be closed during the packing and unpacking, but open it the rest of the time. Kneipp recommended this form of

compress, to "disperse an accumulation of gases in the stomach and abdomen."

## 22. The Under Compress, according to Kneipp.

It is hardly necessary to say that this invention of Kneipp's is the direct opposite of the upper compress, and is laid all over the back. It is applied four-fold, sometimes even in six or eight thicknesses, and always cold, as the object is to strengthen. In chronic cases it may be used two, three, or four times a week. "It greatly benefits the spine, the spinal marrow, removes back ache, and relieves the heart." If the upper and under compresses are ordered alternately, the latter should head the performance.

Otherwise, it is the same with this as with most other compresses. Protection from the air by means of being well wrapped in the eiderdown is to be strictly enforced.

## 23. Upper and Under Compresses, according to Kneipp.

To thoroughly work upon long-standing disease, these should both be applied at one and the same time. First put on the under one, then the upper, and complete the packing so that no mischief-making air may penetrate. The woollen covering must be large enough to lie double and to tuck under. This application of both compresses may be left on from three-quarters of an hour to one hour. "Where the patient is in an over-heated condition, in congestion, hypochondria, etc., the two compresses are most efficacious."

## 24. Local Compresses

These act as "stimulants" or as "soothers." The former consists of old linen of any kind, folded six times, briskly wrung out of water at a temperature of  $13^{\circ}$  to  $18^{\circ}$  R. =  $60^{\circ}$  to  $72^{\circ}$  F; the compress, being placed on the affected part, is covered with a larger covering of flannel in two or three folds, and left on until dry.

It acts locally in the same way as the previously described treatments affect the whole system. First the warmth



is drawn out, but retained in the compress, and often exceeds the temperature of the body. This warmth collected in the compress softens the skin, opens the pores, expands the blood vessels, extracts toxics, the proof of which is found in the colour and the odour of the compress when removed. This compress is very useful for all kinds of diseased exudation, swellings, abscesses, etc., especially when used in connection with some prescribed general treatment.\*

The "cooling" compress with water at  $13^{\circ}$  to  $18^{\circ}$  R. =  $60^{\circ}$  to  $72^{\circ}$  F., sometimes much colder (but not under  $10^{\circ}$  R. =  $54^{\circ}$  F.), is left nearly dripping, sometimes uncovered, and renewed when dry and necessary. It must be four, six, eight-fold or more, according to the effect required. The application is intended to extract undue heat from certain parts of the body, or from congested organs. It certainly refreshes and soothes the patient.

For burns the compress must be as thick, as wet, and as cold as possible. An old piece of linen, folded eight to twelve times, is placed on the wound, and renewed every three to five minutes till the pain decreases. Then it may be left till warm, or pains return. A wet compress on the nape of the neck stops bleeding of the nose; if not, it can be applied to the sexual parts, and must naturally be changed until the bleeding ceases. Or, for extreme cases, the patient may sit in a few inches of cold water, having a compress on the head and the nape at the same time.

To subue inflammation, the compress, wrung out more firmly, with water at  $16^{\circ}$  to  $20^{\circ}$  R. =  $68^{\circ}$  to  $77^{\circ}$  F., and thinner, may be applied, and left on longer. Superficial and subcutaneous inflammation, that which has settled in the bones or the joints, wounds, etc., are best relieved by this compress.\*\*

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\* I cannot refrain from repeating here, before ending my long remarks on packs, the wonderful effect of this "stimulating" treatment, stimulating at first, afterwards soothing. Then the throwing off of toxic substances begins, and continues through the pores, and the compress absorbs them all. When the treatment is a long one, the odour of this diseased evaporation becomes most unpleasant to the patient. But for this there is no remedy, except in renewing the compresses and making the covering thinner. Some patients would like to dispense with the compress, but that would spoil everything. Others rub the skin with some sort of oil, but that is useless, and, above all, the compress must never be covered with oiled silk — this would bring about the reabsorption of the toxins by the skin, which the woollen covering entirely prevents.

\*\* In local inflammation use water slightly "tempered;" change fairly frequently, also when applied to parts through which the blood flows towards the inflamed part. For instance, take a wound on the hand which needs a cooling process with compresses dipped in slightly "tempered" water. The arm,

Local compresses cure wounds, swellings, bruises, etc., but they must be considerably larger than the actual seat of disease, in order to cover the surrounding part which is affected by the inflammation. The best way to achieve this is to put a thin wet compress on the actual wound or swelling, and a larger, thicker one, over that. In cases of larger wounds this is then covered with cotton wool, and finally wrapped in flannel, suitably fastened. It is renewed as soon as it becomes warm or uncomfortable. The compress actually reposing on the wound must be damped without removing it, unless it be every now and then to cleanse it from matter.

A sponge must never be used to a wound, a piece of fine linen, lint, or medicated wool, is the correct article.

### The Counter-irritant Bandage.

This was used by Schroth in caries, fistula, hardenings, cysts, etc. It consists of a four, six, or eight-fold cold wet compress. This, having become warm, is not removed, but covered by another one more moist; this is not touched either, when dry, but is followed by yet another dripping one, and so on. So that this process may go on for ten to twelve hours.\*

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which must be treated downwards, is packed with cold applications, whilst the dispersal of the toxin is brought about by means of a three-quarter, a body, or a complete pack, combined, if necessary, with a leg pack. In inflammation of the eye, the ear, or the brain, the head needs cooling, by means of nape, chest, or shoulder compresses, or the shawl is used to cool the blood, whilst the other packs may be found necessary, too. Inflammation of the lungs is soothed by whole three-quarter packing of the upper part of the chest and back, thick, cold compresses on the inflamed parts, or on the back, with other additional ones as before. Even arm and hand packs have sometimes to be resorted to.

When the inflammation decreases, the blood will need regulating and sending back to the surface, to build up the tissues; the perspiration and evaporation will have been absorbed by the vessels, and have forwarded the process of elimination. The water treatment must still be continued, to increase the circulation of the still delicate organs, either in the form of body or shorter packs, for the space of two to three weeks, during the day, using colder water every time. The time can then be altered, and the treatment applied at night, decreasing to every two or three nights, so as to gradually drop the treatment.

\* Swellings, boils, abscesses, which have not yet broken, require artificial warmth, in the form of vapour compresses; the surrounding parts will thereby be refreshed, and the blood will circulate more freely in the direction of the eliminating organs.

A broken abscess, etc., requires a "stimulating" treatment, the compresses being applied until matter ceases to flow, and the wound is healed.

He used this treatment for the severe disease which troubled the Prince of Würtemberg, after his wound. But I would recommend my readers not to attempt this treatment without the help of a professionally experienced person, for what is one man's meat is another man's poison.

## 25. The Dry Pack.

In this system the wet sheet has no longer a share. The patient is merely wrapped in a large, thick, woollen blanket, and that so thoroughly that no air can penetrate either near the feet or the neck; two or three more are frequently used, always well tucked under, whilst an eider-down completes the business. At the feet a feather pillow is placed, and over all this a large covering, which must be tucked in on all sides. To avoid a rush of blood to the head, a cold compress is applied first at the back of the head. When the packing is complete the windows must be opened.

This dry packing is used in chronic troubles, and with the express purpose of producing perspiration; all those who are weak, anæmic, etc., must avoid it. It is more particularly for full-blooded persons, who would obviously benefit by a decrease of matter without detriment to the important organs. It is good for gout, rheumatism, and in such cases where the three-quarter packing does not produce perspiration.

It is advisable sometimes to apply a body or rump compress first, or to cover the painful parts with the same, to lessen the pain and induce quicker results. Someone must sit in the room, to flick away flies and give the patient water. He must have a glassful every ten to fifteen minutes. When he feels that the perspiration is being absorbed, he must be bathed in water  $24^{\circ}$  to  $26^{\circ}$  R. =  $86^{\circ}$  to  $90^{\circ}$  F., or take a half-body bath at a temperature of  $22^{\circ}$  to  $24^{\circ}$  R. =  $82^{\circ}$  to  $86^{\circ}$  F., or a body bath at  $18^{\circ}$  to  $22^{\circ}$  R. =  $72^{\circ}$  to  $82^{\circ}$  F.

Washing and rubbing will not suffice after a dry pack, so that the patient must go to bed, or take open-air exercise after the operation.

The dry pack can be combined with the sun bath, and is then of shorter duration. Otherwise, the rules are similar to those which apply to the whole pack.

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## II.

### Baths and their Use.

#### 1. The River Bath.

(See Chapter 18, Part I, of this book.)

In medical practice, and with bedridden patients, there can obviously be no question of this.

But comparatively sound persons, or those who suffer from slight chronic disorders, may benefit by river bathing on hot summer days, by taking the precautions already mentioned by me in Part I. On this point I may explain my words "comparatively sound," or "suffering from slight chronic disorders," by adding, that I do not believe there exists in this inoculated world one single sound man. If so, I wish he would communicate with me, so that I might express my admiration.

Those who suffer more severely from chronic disease, and amongst whom I include "imaginary healthy" persons, neurotics who suggest health as it were to themselves, should confine themselves to all kinds of ablutions and baths, in the heat of the summer, at a temperature suited to the constitution of the subject.

#### 2. The "Full" Bath.

##### Warm Baths for comparatively Healthy Persons.

This question was treated of in my Chapter relating to the care of the skin, and from the point of view which heads this Chapter.

Really, I need hardly do more than give the temperature required for such baths. As a rule, water is used when too hot, which is always injurious. The bath is prepared at 90 to 95° F., and if it strikes the subject as being too cold, more hot water is forthwith turned on; that is a mistake, for the temperature of a bath must be such that the sensation on sitting or lying down shall be one of slight shivering. As soon as the water is still, this gives place to comfortable warmth, but the shivering reasserts itself as soon as the



bather moves, and, in doing so, disturbs the water. This alone determines the correct temperature, which must, as usual, be determined by individual constitution, age, sex, etc., and may range from  $90^{\circ}$  to  $98^{\circ}$  F.\*

If, however, the sensation of slight chill does not soon disappear, the water is really too cold, and more warm must be added. The water must reach up to the neck of the bather.

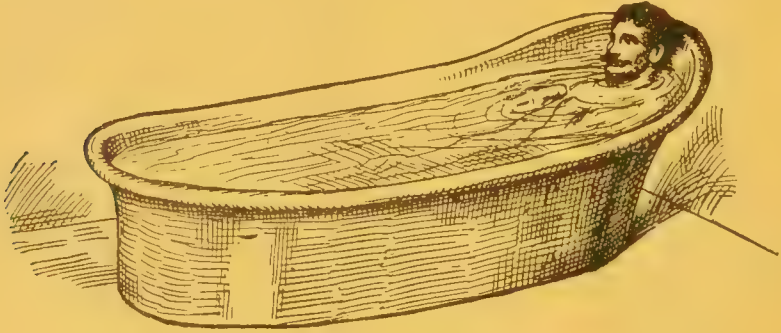


Fig. 93. The Full Bath.

He should leave the bath as soon as the chilly sensation returns; this may not be for ten to fifteen minutes, or even longer. Then the bather must get out immediately, dry himself quickly, dress, and take open-air exercise, or, having donned the usual night apparel, go to bed without drying himself.

### Kneipp's Cold Full Bath.

At one time this form of ablution was one of those dearest to the Priessnitz set; owing, however, to its misapplication, it rapidly fell into disfavour. Many observations were made, resulting in the discovery that the effect of the intense coldness of the baths was positively detrimental; in several cases serious hemorrhage ensued, or a rush of

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\* We have gathered from former Chapters, that the closer the temperature of the water tallies with that of the body the less important will be the action of the bath; according to the individual, water at  $90^{\circ}$  to  $98^{\circ}$  F. will lack the power to produce the result expected. The degree forming a medium is generally called the "indifferent degree of warmth."

A full bath of indifferent temperature will be more soothing, because irritating bodily causes will be absent; it quiets the breathing and the heart pulsations, and induces sleep.

Such baths should be tried in cases of illnesses carrying with them great nervous excitement, sleeplessness, etc.

blood to the kidneys; the albumen became disintegrated, etc. With others the temperature fell below normal, the skin remained colourless, the face pale, the lips blue; the hands and feet were cold and the colour of wax; shivering, spasms, faintness and dizziness troubled the patient, and this was followed by weakness and loss of flesh.

This white elephant of hydropathy was reinstated by Kneipp. True to his principle, viz., that in the water cure "the shorter the application the better the results," he gave four to five seconds — not minutes — as the correct duration of the cold bath; the water from river, spring, or fountain, to be of the lowest temperature possible, and there is to be no drying of the body in this case, according to Kneipp. After the bath, brisk bodily exercise in the open air is imperative, therefore only those who suffer from slightly chronic troubles should avail themselves of them. This bath is ordered once, sometimes twice in the day, and in combination with other water treatments it works remarkably well after any steaming or sweating process, dry or wet packing, etc. It is also quite pleasant and of great efficiency on rising in the morning — by going straight from bed into the bath, sitting down slowly, and ducking the head in repeatedly, much benefit is experienced.

### The Action of the Cold Bath.

The cold bath belongs to the so-called "Stimulants," since it is taken with the object of inducing warmth from cold. All the superficial blood vessels, and the peripheral nerve-ends, are simultaneously excited by the cold water, and the effect is all the more complete, inasmuch as the water covers the whole body. The blood set into action flows to the internal organs, to rush back to the surface under the influence of the cold. The skin becomes coloured, and a healthy glow follows the first sensation of cold. This bath is mainly suited for those patients whose constitution requires a sudden shock to the nerves and circulation, for the better dispersal of extraneous matters. Intense nervous disorders, anæmia, diseases of the lungs, the heart and the kidneys, are inimical to this violent treatment.

### The Warm Whole Bath, according to Kneipp.

In this learned man's opinion the warm bath must be taken alternately with the cold. Warm infusion baths, of

shave grass, only work in connection with the above. The bath must be filled with warm water, at a temperature of  $90^{\circ}$  to  $97^{\circ}$  F. for stronger adults and young patients, and  $97^{\circ}$  to  $100^{\circ}$  F. for the aged and weakly. The duration of the bath is limited to twenty-five or thirty minutes. Have ready a cold bath, at a temperature of not less than  $63^{\circ}$  F., into which the subject plunges for not more than a minute; then, having rapidly thrown on his clothes, without drying, he must walk briskly in the open air to restore circulation. He must exercise legs, arms and body in the cold bath, but not dip his head under water.

Another way: Let the temperature of the water be  $97^{\circ}$  to  $100^{\circ}$  F., and, if necessary,  $102^{\circ}$  to  $105^{\circ}$  F. If a higher degree of warmth be required, it must not exceed  $100^{\circ}$  F.\*

The process, according to Kneipp, takes thirty-three minutes — ten minutes in the full warm bath, one minute in the cold one, then another ten minutes in the hot water, and so on, three times over. The last thing is always the

\* The Japanese hold with the hot bath according to Kneipp. At the Twelfth Medical Congress in Wiesbaden, which was attended by Professor Erwin Baelz of Tokio, he discoursed on "Hot Baths" to the following effect. Like all Japanese, Baelz had a daily hot bath,  $103^{\circ}$  to  $110^{\circ}$  F., from the age of sixteen upwards. His remarkably healthy appearance testifies to their excellent effect, but when, one day, in some Wiesbaden establishment, he asked for a bath at that temperature, they thought he must be slightly insane. The innumerable experiments of the Japanese, who bathe regularly twice and three times a day, speak for the system more than volumes of praise. The public baths of Tokio are visited daily by 3 to 400,000 persons; each bath costs about one farthing.

The beginning of the bath consists of ablutions of the abdomen and arm-pits, the parts which most easily give out perspiration (the bath is narrow, and the water runs all the time); after which the bather gets out, washes all over, and returns to the bath for one to two minutes. Then he quickly dresses, and walks out barefooted, whatever the season; the hot water so relaxes the vessels, that the cold has no power to cause the contraction which might result in a chill. The lecturer praised the physiological effects of the bath upon the temperature of the body, which, after ten minutes' bathing, rises to about  $99^{\circ}$  F., and after twenty minutes, to  $103^{\circ}$  F. The pulse is more rapid, the breathing and heart-beats fuller; the bather perspires freely, but after an hour's time all the functions are perfectly normal. Albumen is not increased by hot baths, said Baelz, thus contradicting the idea, prevalent in Germany, that they are weakening, chill-producing, and consequently injurious. His personal experiences, and those of all Europeans living in Japan, were the same; the latter had adopted hot bathing, and continued it on their return to Europe. In fact, the Japanese runners, who sometimes draw an adult in a car 100 kilometers a day, would be unable to carry this out if a hot bath were weakening — its effect after a long mountain expedition is most reviving.

cold bath. Otherwise, it is really all the same, as the first process described.

This ringing of the changes on the system, by alternate extremes, results in a set of reactionary conditions of the organism, culminating, as it were, into one violent reaction in the whole body. Several complaints brought about by gout, rheumatism, swellings of the joints, imperfect admixture of blood and other substances, seem to call for the use of the warm full bath according to Kneipp.

### 3. The Half-Bath.

As the cold full bath rather resembles the cold friction in its physiological effect, so the half-bath may be compared with the washing process in the mildness of its effect. It also holds an important place in the water treatment.



Fig. 94. The Half-Bath. Water being poured over back of patient.

As space will not allow me to here repeat the process and the result of the half-bath in acute diseases, I must refer the reader to what I have already written about it in Chapter 19 of the First Part of this book.

Where chronic troubles are concerned, as in fever cases, one of the rules is that, as soon as the patient is seated in the bath his legs and feet must be rubbed in the water, to induce a relaxation of the blood vessels; in the



meantime the patient must sponge his chest and arms, and himself rub those same parts. When the skin of the legs begins to redden, the "rubber" must give his attention to the friction of the back, shoulders, neck, etc., sponging those parts at intervals. The patient continues his rubbing of the chest and fore-arms with alternate sponging of the same. (See Fig. 94.) When the skin of the upper part of the body is red, the patient may leave the bath, or repeat the whole process. The length of the process does not exceed two to four, or, at the most, five minutes, in water at an average temperature of  $16^{\circ}$  to  $25^{\circ}$  R. =  $68^{\circ}$  to  $88^{\circ}$  F.

After the bath the body must be gently dried, or roughly rubbed with a coarse cloth, according to whether it is desirable to increase the effect of the bath upon the body.

### **The Effect and Need of the Half-Bath in Chronic Diseases.**

The need for the half-bath, like the ablutions in all chronic complaints, for the cure of which water is imperative, is quite obvious, the only exception being chronic diseases of the lungs, or certain forms of blood diseases. The advantage of the half-bath lies in the fact that the temperature of the water can be fixed to a degree, which is not always the case with other water applications, such as washings and packings. Its effect is also much milder, causing less exhaustion than, for instance, the cold wet friction, the full bath, the Kneipp or the lightning affusion, all these, as we know, producing a strong reaction, which brings about a complete revolution in the system. The result of the half-bath is, in its way, as thorough, and the soothing bodily warmth which it produces lasts for many hours. In fact, it is a wonderful help for hardening delicate persons, or those who have a marked aversion to water; it is then advisable to begin at a temperature of  $25^{\circ}$  R. =  $88^{\circ}$  F., lowering it daily by half a degree — this is most easily done by allowing the cold water tap to run gently. This will accustom the patient, in a shorter space of time, to decrease to from  $16^{\circ}$  to  $18^{\circ}$  R. =  $68^{\circ}$  or  $72^{\circ}$  F.

The half-bath is specially useful to free the heart and similar organs from a rush of blood, in congested head troubles, earache, inflammation of the eyes, and other cases requiring for their relief a relaxation and expansion of the veins of the lower part of the body.

#### 4. The Sitz Bath.

(See Fig. 95.)

The explanation of the above has already been given on p. 182. This is another most effective water treatment, not only because the larger portion of the body is covered by water, but because it affects, more than the foregoing, all the larger and more important branches of the circulatory system.

##### The Cold Stimulant Sitz Bath:

The temperature of the water must be  $13^{\circ}$  to  $18^{\circ}$  R. =  $63^{\circ}$  to  $72^{\circ}$  F., and the duration of the immersion short, from one-half to three minutes. It is adapted for inducing a strengthening and hardening process of the sexual organs. The bath must not be taken under  $63^{\circ}$  F., nor for a longer time without the advice of a professional water treatment doctor. If there is any fear of a rush of blood to the head, it is advisable to wash the face, neck, arms and armpits with cold water before entering the bath, or to wear a cold compress round the head during immersion.



Fig. 95. The Sitz Bath.

When the reaction has set in, and shown itself by redness of the skin, the body must be well rubbed, or left undried, according to the result expected: in the latter case, quickly put on some clothes, and take open-air exercise.

##### The Effect of and Directions for the Sitz Bath.

When the patient sits down in this, it must be slowly, on account of the sudden reaction produced, and which was dealt with when treating of the "Nervous System," in the Chapter concerning rubbing. This reaction affects the heart and the lungs in connection with the circulation. The

vessels of the abdomen, at the first contact with cold water, contract with the shock, so that a congested feeling is apparent in the head and upper part of the body generally. The way of preventing this has repeatedly been stated.

It has also been well impressed upon the reader that the reaction brings back a rush of blood to the parts of the body from which the sudden shock of the cold water has driven it. The colder the water the more marked the shock, the more rapid the re-expanding of the contracted vessels, and the more complete and comforting the relief experienced.

By drawing the blood to the abdominal organs (the entrails and organs of generation), it is withdrawn from the head and chest; the increase in the amount of blood to the lower part of the body has a beneficial and stimulating effect on their functions. It hastens the process of assimilation, and thus the cold, stimulating sitz bath may advantageously be employed in cases of inactivity of the bowels, bladder, and generative organs, morbidity of tissue, anæmia, and defective circulation. It may also be recommended as a remedy for impotence, various forms of gleet, weakness of the sexual organs, diseases of the womb (prolapsus, displacement), certain kinds of chlorosis, irregular, scanty or suppressed menstruation, varieties of hemorrhage, etc. It serves to diminish congestion of the lungs and brain, and of the liver, and can be used in some forms of indigestion, constipation, flatulency, prolapsus of the rectum and diseases of the bladder.

Excessive sexual irritation (sexual neurasthenia), combined with frequent pollutions; hemorrhage of the feminine sexual organs, in consequence of a congested condition of these parts; inflammation or cramp of the bladder, or of the lower bowels, in fact, all disturbances and complaints of the abdominal organs that are due to congestion, irritation, excessive irritability, render the application of the cold sitz bath inadvisable. For these cases we recommend

### **The Sitz Bath in its Soothing and Cooling Form.**

The temperature of this should be from 74° to 77° F., but excitable, nervous, or delicate patients may take it first at a temperature of 80° to 87° F., and gradually reduce the temperature as they gain strength. The bath may be diminished one or two degrees daily, or else cold water can be

poured in during the bath, to reduce the temperature more rapidly. According to constitution, and the nature and degree of the illness, the bather may remain in the water from fifteen to thirty minutes. If it is ordered for a longer period, the feet of the patient should be wrapped in a blanket, to prevent cold; the patient being quite naked, may also cover himself and the bath with a blanket fastened with safety-pins. After the bath, he may be dried, or not; return to bed, or take exercise, as directed.

### The Effect of this Bath.

The higher degree of warmth contracts the vessels in this case, but the reaction of greater expansion does not take place, or, if so, incompletely. The blood is driven from the parts immersed, the bodily temperature is lowered, and the process of oxidation lessened, it is therefore anti-inflammatory, and beneficial in chronic inflammation of the abdominal organs, whether in men or women. The best time to take it is just before retiring to bed, although it is not precluded at other times; only the temperature of the body must be normal, and the bath should not be taken except three hours after a meal.

The sitz bath, whether cold or soothing, is generally used in connection with other forms of water treatment, and not alone.\*

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\* In fever the sitz bath, if first tempered or lukewarm, decreases excitability, on account of its soothing nature; it lowers the pulse and the temperature, and prepares the pores, as it were, for greater perspiration. To effect this, the whole or three-quarter packing is applied alternately with the above. In cases of colic the effect is immediate. Cramp in the stomach is always removed by a sitz bath at  $16^{\circ}$  to  $18^{\circ}$  R. =  $68^{\circ}$  to  $73^{\circ}$  F.

Taken before bed time, the effect is not only soothing and sleep promoting, but cures cramp and certain involuntary actions of the sexual organs. The water must not be under  $20^{\circ}$  R. =  $78^{\circ}$  F., and the bath may be of twenty to forty minutes' duration; dry the body well and go to bed. In some cases affecting the latter-named organs the sitz bath may be left in the room, so that the subject may repeat it, if desired, during the night.

The sitz bath is not advisable for sufferers from throat and lung ailments, the trunk compress and foot bath are more suited to them.

In hip troubles, rheumatism in the back and hips, this bath rather settles the pain in those parts, and does not relieve it. Foot baths and packing of the leg and calf act more satisfactorily. (The reader must bear in mind that in all water applications or treatment, the "drawing down" (taking the blood down) process, to be induced by bathing and packs to the lower extremities, is in every case to be a warming one.)



## The Warm Sitz Bath.

This is a so-called sedative, which, however, is not injurious, like the narcotics and anæsthetics of the medical profession. The hot water in this case is intended for the immediate cure or removal of a troublesome or dangerous symptom, but it is imperative to use other means at the same time for dispersing the cause of the disease.

The temperature of the water is from  $25^{\circ}$  to  $32^{\circ}$  R. =  $90^{\circ}$  to  $105^{\circ}$  F., and the duration, according to circumstances, from half-an-hour to two hours. Thus the result obtained is relaxing and soothing, in other words, it relieves pain and lessens spasms. In pains attending menstruation, cramp in the bladder from chill or inflammation, the warm sitz bath almost invariably gives relief without any disadvantage. When the water becomes cool, the bather should leave the bath, or add hot water — after the bath, the patient may either sit in a cold bath at  $20^{\circ}$  to  $22^{\circ}$  R. =  $78^{\circ}$  to  $83^{\circ}$  F., for a short time, or wash the immersed parts in warm water at  $18^{\circ}$  to  $20^{\circ}$  R. =  $75^{\circ}$  to  $79^{\circ}$  F.

## Kneipp's Warm Sitz Bath.

It is prepared from an infusion of oat stalks, or shave grass, and has been described on p. 472. After boiling the plants, the mixture should stand (like tea), to become stronger. It is then put into the bath, to cool to a temperature of  $25^{\circ}$  to  $29^{\circ}$  R. =  $90^{\circ}$  to  $98^{\circ}$  F. Then the patient can sit in the same for fifteen minutes, always following it up with a cold bath. Two utensils are thus required. The process consists in sitting in the infusion for five minutes, in the cold bath for one minute, repeating this three times.

The warm grass infusion relieves rheumatic, gouty and internal cramp troubles, and is also beneficial in cases of

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Sufferers from hemorrhoids, inflammation of the womb, vagina, and other troubles implying a settling of too much blood in one part, should remember that if the pain continues in the bath the water is too cold. Let in more hot water, so that its temperature may rise to 20 to 22 R. =  $78^{\circ}$  to  $83^{\circ}$  F.

Open wounds, etc., require a certain "tempering" of the sitz bath; chronic diarrhoea also necessitates lukewarm water. Free evacuations need no special treatment, as they show that a crisis is taking place in which there is an elimination of some existing toxic matter. The sitz bath is desirable where the diarrhoea is accompanied by pain, or is protracted, or where blood is present.

swellings, boils, and the like, pains of menstruation, stoppage, etc. The straw infusion affects congestion, gout, intestinal affections, etc.

After the bath Kneipp says no drying is needed, but it is advisable to induce a return of the normal temperature by going to bed.

## 5. The Friction Sitz Bath, according to Kuhne.

It is taken thus: A board, cut out in front in the shape of a crescent, is fixed in a bath, so that two or three cans of water will have room underneath; a footstool may be used, though the scooped-out board is best. The water must reach the upper surface of the plank or stool — reach it, but not wet it.

The bather — with shirt drawn up, the rest of the body stripped, with the exception of shoes and stockings — sits in the bath with his legs hanging over the edge.\*

Women and girls may use a coarse canvas cloth, or an old towel which takes up plenty of water, and wash the outer private parts. This may be done very gently, and all rubbing must be avoided. The cloth should be passed upwards, not downwards, and only the exterior parts should be touched.

Men and boys (who should draw the foreskin forward and hold it closed) may wash the extremities with a coarse cloth, doing this under the surface of the water. This is very important, for many make the mistake of only dipping the cloth in water, and using it above water. Or, instead of washing the end of the foreskin, it may be held closed under the water, and the whole member washed from the point towards the body.

The water for a friction sitz bath should always be cold, but for very delicate and sensitive people it is permissible to begin with water at 65° F., and gradually to accustom the patient to use water at the natural temperature of the season.

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\* The bather derives most benefit if he sits without clothing, exposed to the sunshine and fresh air, thus combining a friction bath with a sun and air bath. This is, however, not often practicable, and the best substitute is to take a bath in a room where the temperature is at least 68°. If this, too, is impossible, the patient must be covered with several blankets, or with light but warm garments, which will not hinder the evaporation during the bath.

The colder the baths the greater their efficacy, though it is never safe to use water too cold for the hands to remain in it with comfort. (See p. 160.)

If no hip bath is to be had, any kind of tub will answer the purpose if it is deep and broad enough to hold a foot-stool to serve as a seat. Kuhne says that an adult requires for a bath four or five gallons of water, and a child two-and-a-half to four gallons. The water must reach to the upper edge of the seat, and if too little be used, it is heated too quickly, and loses its efficacy.

Soft water is preferable to hard, rain water is best of all, then river water, and lastly spring water. This last should be allowed to stand some time before it is used for a bath.

The bath lasts from ten minutes to an hour, according to age and constitution. In acute cases it is taken again and again, and lasts until the fever and excitement diminish; it is impossible to exactly limit the duration of the bath under these circumstances.

In chronic cases the patient may bathe two or three times a day; the best times are — firstly, on getting up; secondly, an hour or more before dinner; thirdly, shortly before going to bed.

The patient's temperature must be at least normal, and if it falls short, some warming process must be employed — but cold feet are no impediment to a bath. Kuhne employs the friction bath either alone or in conjunction with cane chair vapour baths and hip baths, and always prescribes a strict vegetarian diet. He does not use packs, bandages, enemas, or massage.

I have discussed these points in detail in Chapter 28 of Part I., and must refer the reader to what has been said there. On p. 303 I have explained the physiological action of these baths, and it only remains for me to quote what Kühne himself says regarding them. In his work entitled "*Die Neue Heilwissenschaft*" (The New Curative Science), pp. 113—116, he says:

"In the case of patients suffering from internal inflammations, it commonly happens that the inflammation is drawn to a lower part of the body, and shows itself either at the point where friction is applied, or in its vicinity . . . . This is always a favourable sign, and should not cause anyone to give up the baths.

"Many will wonder why this part of the body rather than some other is chosen for the application of this treatment.

The reason is simple. The action of the baths is two-fold. They have a purely mechanical action, as they serve to cool the interior of the body, which is always abnormally hot when disease is present, in a way hitherto unknown, and at the same time during the bath a peculiar warmth is imparted to the outer skin, which is too cold in the case of sufferers from chronic disease. Thus the friction sitz bath, and my form of hip bath, are peculiarly efficacious in reducing to the normal level temperatures that have been affected by disease, and in this way any further fermentation or working of diseased matter is checked.

“Moreover, these baths have a strengthening action upon the nerves, which convey the vitality to all parts of the body. There is no other part of the body where the ends of so many great nerves meet. These are especially the spinal nerves and the sympathetic nerves (*nervus sympathicus*), they are not only the chief nerves of the abdomen, but as they are connected with the brain, they have power to influence the whole nervous system, and this can be done only at the sensual organs, for they are, in a sense, the root of the whole being. The cold washings increase the strength of the nerves, or, in other words, the vitality of the whole body, and an exception is only possible where the nerve communication has been interrupted.

“I believe that no one can discover another part of the body whence the same influence can be extended to the whole organism. No one can alter the fact, any more than he can prevent all life from being the product of the reciprocal action of sun, air and water.”

This treatment, like every other which aims at the elimination of foreign matter from the body, produces crises from time to time, and the patient seems to grow worse, but they are necessary consequences of the treatment, and should be regarded as acute feverish stages in the recovery of the patient. A process of fermentation is produced, and gives rise to some fever, which gradually puts an end to the chronic diseased condition.

The reader must note that in every course of treatment, each apparent aggravation of symptoms and every crisis is a step on the road to health, which cannot really be restored in any other way. (See pp. 210—218.)



## 6. The Body or Trunk Bath.

In this bath the whole of the upper part of the body is washed, and the water, which in the sitz bath only reaches to the navel, now is deep enough to cover the region of the heart.

The body bath is generally taken at a temperature of from  $72^{\circ}$  to  $82^{\circ}$  F., and is accompanied by vigorous rubbing of the abdomen downwards and sideways from the navel. This must be done under water, and a coarse jute or canvas cloth used for the purpose. Delicate persons may use at first water of a higher temperature ( $83^{\circ}$  to  $90^{\circ}$  F.), allowing cold water to flow in during the bath until the temperature is reduced to  $72^{\circ}$  to  $78^{\circ}$  F. (This cold water can be conveyed

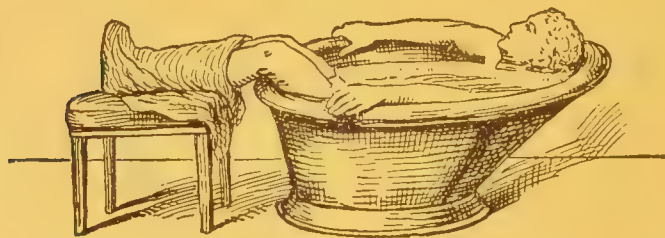


Fig. 96. The Body or Trunk Bath.

by means of a piece of tube fastened on to a tap.) The washing of the abdomen is continued until the body is perfectly cool, and these bodybathsgener-

ally last ten or fifteen minutes, but not so long for children and delicate persons. The legs, feet, and chest are not wetted in an ordinary body bath, but if it is used for cooling the patient after a vapour bath, an exception is made, and the head, face, neck, chest, legs and feet are washed before he sits down in the bath. He stands with one leg in the bath, rubs it down with the rough cloth, dries it, then washes the other leg in the same way, and then sits down in the bath and proceeds to rub his abdomen with the cloth under water, to complete the cooling of the body.

There is only one way of taking a friction sitz bath, and it requires cold water only, but a number of modifications are possible in the temperature of the body bath. The quantity of water used may vary. For instance, the bath may begin with water of  $93^{\circ}$  F., and cold water may be added and the warm drawn off, so as to reduce the temperature gradually.

People who are accustomed to the baths may begin

with cold water, and as it becomes heated through contact with the body, it may be let off and fresh added, so as to maintain the bath at a sufficiently low temperature.

It is a common mistake not to use enough water, and to pour in cold water so that it only reaches to the navel. Thus a small part only of the body is immersed, and the effect of the body is to reduce the heat too suddenly, especially as this is intensified by continued friction of the abdomen, of the lower part of the back, and of the region of the kidneys.

The patient reclines — half lying, half sitting — in such a comfortable position, that these baths may be taken even by those who are very weak, though then the water must not be colder than 82 to 88° F.

People who are weak and suffering from chronic diseases should not take more than one bath daily, those who are stronger may take two or three. After a bath some warming process is necessary; the patient may take active exercise in the fresh air, if possible in air warmed by the sun, or he may go to bed.

If the bath is taken at night, of course he will do the latter, and the bed must be warm, to encourage perspiration. It is well to lie on a straw mattress, and to use some blankets and an eiderdown quilt, well tucked in, as covering.\*

Sufferers from acute diseases and fevers may stay in the bath until the heat leaves the head and chest, so that the bath in this case lasts half-an-hour or longer. The attendant can ascertain when it has lasted long enough, by feeling the patient's neck and armpits. The bath must be at a comparatively high temperature if the patient is weak or very young, or if the fever runs high. Patients who are strong can go to bed at once without being dried, and must be well covered up with the eiderdown. If they become feverish, they must at once be bathed again, of course in fresh water. It is never permissible to use the same water again, and this remark applies to every kind of bath. The

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\* The objections raised to the eiderdown quilt, by reason of its being impervious to moisture, do not apply when it is expressly used to make a patient warm. The very fact of its being impervious, which renders it injurious to healthy people, is advantageous to the sick, when it is desirable to make them perspire. The use of the eiderdown at night is an integral part of Kühne's treatment, as he aims at inducing perspiration.

feet must be wrapped in a rug whilst the patient is in his bath. (See Fig. 96.)

Chronic invalids benefit most by the bath if they can take it when they are completely naked, in a place where the air is fresh and warmed by the sun. They may, however, be covered with a rug laid round themselves and the bath, after the fashion of a cloak, and secured at the neck by a safety-pin. If the bath is taken in a room, the temperature of the air should be at least 65° to 68° F.

When body baths are taken after vapour baths, water of a low temperature may be used at once (73° to 78° F.), and it must be deep enough to cover the region of the heart. Immediately after leaving the vapour bath, of whatever kind it has been, the patient stands on a straw mat or on a rug beside the bath containing the cold water, scoops up water in his hands to wash his head, face, neck, shoulders and chest, then he washes his legs, as I have already described, and dries the parts which he has washed.\*

Then, with the help of an attendant, he sits down slowly and cautiously in the bath, leans forward to have his back well rubbed down with the rough cloth (of course under water), and then lies back. The attendant wraps up the patient's feet and legs to the knees, and lays them on a stool at a convenient height, the patient rubs his abdomen with the cloth under water until his whole body is cool.

The rubbing can, of course, when necessary, be performed without an attendant. The water may be slightly warm (82° to 84° F.) at first, and cold water added during the bath. The hip bath taken in this way, to cool a patient after a vapour bath, is followed by exercise, or by rest in bed, to restore heat.

This bath has the following undeniable advantages: Only a small part of the body is exposed to the action of the water, which may therefore be of a relatively low temperature, and the patient may remain in it for a considerable time without harm.

The friction on the abdomen breaks up and disperses any accumulations of diseased matter (which is particularly

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\* He washes more for the sake of cleanliness, to remove the perspiration, than to diminish the heat of the body, for the bath itself suffices to cool the whole body, and he must remain in it until the head, chest and armpits are cool to the touch.

apt to remain in this part of the body), and causes its elimination through the skin. (See remark on p. 301.)

The friction also has the effect of attracting to the abdominal organs of secretion the waste matter of the whole body, and assisting the organism in transferring to the bowels and kidneys, for eventual removal, such matter as either cannot pass away through the skin, or, for some reason, the skin has failed to carry off. The body bath is peculiarly beneficial after a vapour bath. The vapour has had the effect of causing the foreign matter in the body to ferment. The body bath prevents the products of this fermentation from rising to the head, and attracts to the bowels and kidneys such matter as has not passed away through the skin under the action of the vapour, it is therefore held in check, so that it is unable to lay hold upon any other organ or part of the body, as it would do if it were not completely removed.

The sitz bath has already been described as one of the most efficacious applications of the water treatment, but the body bath surpasses it, inasmuch as the latter combines the action of friction and heat. It can be used in the treatment of excessively weak patients without doing them any harm — in fact, it can only do good. Its use is based upon the theory of the unity of all forms of disease, and so far from harming a patient, it does good, and affords relief and strength even to sufferers in the last stage of consumption. In their case the water must be about 86° or 88° F., and the bath must not last long. I recommend the use of this bath to women during pregnancy, as it conduces to easy accouchements. They should take it at least four or five times a week. It is invaluable in the treatment of abdominal inflammations of every kind, in diseases of the stomach, bowels, kidneys, liver and spleen; in diseases peculiar to either sex, and in affections of the ears, eyes, head, throat, uvula, tonsils and chest.

## 7. The Foot Bath.

Like the sitz bath and the body bath, the foot bath may be used to withdraw the blood from congested parts of the body, or it serves to strengthen the feet.

In the Chapter "Action of the Loin Pack," pp. 484, 485, it has



already been stated that the feet and toes, as well as other parts of the body there enumerated, contain the ends of the chief blood vessels of the body, and measures taken to increase or diminish the flow of blood to the skin at these parts have not only a local effect, but their influence is felt all along the blood vessels in the direction of the heart. Some doubt may be felt as to whether the blood vessels of the feet, even if expanded to the utmost, can contain enough blood to withdraw it from the upper parts of the body with any perceptible results; it is, however, a fact that such is the case, and the explanation of it is that the nerves in the feet affect the great nerve centres which regulate the circulation of the blood, and so cause the blood vessels of the corresponding upper part of the body, i.e., of the head, to contract.

The foot bath is therefore of great importance in the water treatment, because the feet play such an important part in the distribution of blood in the body.

### The Strengthening Foot Bath.

The water is cold, and deep enough to completely cover the ankles. The bath lasts from five to ten minutes, and, as a



Fig. 97. The Foot Bath.

rule, the temperature should not be below 55° F. Whilst the feet are in the water, an attendant rubs them vigorously with his hands, and subsequently dries them. They are then either rubbed again until they are warm, or the patient must walk about until his feet have recovered their normal heat. In sprains, etc., the foot bath is very useful.

If the foot has been sprained, as so often happens when ladies wear high-heeled shoes, the feet may remain in the water for an hour or more, the friction being continued all the time, and fresh water added now and then to keep it cold. The burning sensation that follows a sprain is removed

by the cold water and friction, the blood is dispersed, the fibres and little blood vessels return to their normal position, the pain is diminished, and if this treatment is applied twice a day for three or four days, a stimulating bandage being worn in the meantime, a cure is generally effected, whereas scientific treatment often takes three or four weeks to attain the same result.

### The Cold Foot Bath.

The water for this bath must be freshly drawn, and of a temperature not below 50° or 55° F. The feet are covered as far as the ankles, therefore it must be an inch or two deep in the pan before they are put in, and allowed to remain until they get warm, but, in order to accelerate the reaction, one foot must be rubbed against the other, and the rubbing extended up to the calves of the legs. As soon as a glow sets in they must be removed from the water.

This is a warming process, and the physiological explanation of it is the following: At first heat is lost, but subsequently it is regained, and the work of assimilation receives a stimulus, not only locally but throughout the body. Hence heat is withdrawn from the corresponding parts — the head, ears, eyes, teeth, neck, chest, hips, etc. It frequently happens that a long, cold foot bath is all that is necessary to cure headache and rheumatic pains in the joints. Chronic affections of the throat, eyes, and lungs are often quickly relieved by a cold foot bath taken every other day. Occasionally it produces an eruptive crisis, which appears on other parts of the body, and especially on the legs. (See "Metastasis," p. 188) The cold foot bath is invaluable to sufferers from cold feet. The only precaution is to take as much exercise as possible in the open air both before and after the bath; in fact, after a bath, the patient should not rest until his feet are really hot.

Weakly patients who cannot take active exercise must have their feet well rubbed before and after the bath.

To avoid a rush of blood to the head when the feet are put into the water, it is well to wet the head beforehand, and, if necessary, to apply a cooling compress, which must be renewed as soon as it gets warm. It is advisable to combine the cold foot bath with the cold wet friction. (See p. 451 etc.) That is to say, the whole body is first rubbed down, then exercise is taken to restore heat, and lastly the foot bath is

used. This must of course be followed by some process of restoring heat, and it should never be used more than once a day; weakly persons should not use it more frequently than every other day, or twice a week.

### Cold Foot Bath, according to Kneipp.

There is no difference at all between Kneipp's foot bath and that already described. The water is cold, and the bath lasts two to four minutes, viz., until the feet are warm. "As soon as the feet lose the sensation of cold, and feel warm, the water ceasing to appear cold, they must be taken out of the water, as the reaction has set in." Father Kneipp recommends this bath for regulating the circulation and the distribution of the blood (when the head is too hot and the feet too cold), and in cases of headache, diseases of the bladder and kidneys, urinary complaints, for strengthening the voice, in constipation, and in disorders peculiar to women. As a rule the feet should not be dried, but the patient must put on shoes and stockings quickly, and run about until the feet are thoroughly hot.

### Standing in Cold Water, according to Kneipp.



Fig. 98. Standing in Cold Water, according to Kneipp.

This is a treatment intended to harden the body (see Fig. 98), and it is generally combined with wetting the arms with cold water. The patient stands in a tub with water up to the knees, but not for more than one minute, then, without drying the feet, she puts on her shoes and stockings quickly, and dips her arms up to the armpits in the cold water, holding them under the water for another minute, then, without drying them, she slips on a cloak and

hastens into the open air, where she runs about until her feet are hot and her arms have recovered their normal warmth.

If the bath or tub is sufficiently large, the arms and legs may be bathed at the same time, or the patient may stand in a tub on the floor, and dip her arms at the same time into a basin placed on a chair beside it. Her temperature must be at least normal, although cold hands and feet alone need not deter her from adopting this treatment.

### **Water Treading, according to Kneipp.**

Water treading, or walking in cold water, is a hardening process as well as a means of regulating the circulation. The patient gets into a large bath, the bottom of which is covered with cold water to the depth of about an inch. He walks quickly up and down in it, or else remains in one place, moving his feet up and down, and, to some extent, adopting the so-called "trotting movement." (See under "Gymnastics.") This is to be continued for two, three, or at most four minutes. The feet are not dried, but the stockings are put on at once, and the feet warmed by quick walking or trotting in the open air.

Those accustomed to this treatment may use much deeper water. Delicate, excitable, nervous persons and convalescents, may use water slightly warmed, but they should diminish the temperature gradually, until, after some time, they can get into quite cold water. They may get out of the water on to a straw mat or a rug, dry their feet well, or employ some one to do so, and to rub them until they are burning hot; and in cases where active exercise is impossible, the patient must go to bed until he is thoroughly warm.

### **The Stimulating Foot Bath.**

(See the Cold Foot Bath, pp. 533, 534.)

### **The Abducting or Cooling Foot Bath.**

(See the Cold Foot Bath, pp. 533, 534, and Kneipp's Cold Foot Bath, p. 534.)

### **The Warm Foot Bath, according to Kneipp.**

This bath should last fourteen minutes, and it may be taken at any temperature as tending to soothe the nerves. Elderly



and delicate persons, who are afraid to use the cold foot bath, may use warm baths at blood heat (98·6 to 99·8 F.) Old people derive great advantage from the use of such a bath, taken for fourteen minutes before going to bed, as it induces sleep. Some salt and ashes may be put into the water, in order to combine a soothing with a reducing effect. Warm herb foot baths, taken at a temperature of 100° to 106° F., and lasting fourteen minutes, have very good results.

Kneipp prescribes baths of hay flowers and oat straw water for colds, gout, stoppage of urine, diseases of the blood and bones, tumours, swellings on the feet, bones or muscles, excessive perspiration of the feet, etc. After the bath the feet are not dried, but the patient goes to bed, either with or without foot bandages (see Index), and remains there until the evaporation ceases and the normal temperature is restored.

In cases of gout, etc., much advantage is derived from the use of the alternating foot baths, which last nine minutes. The feet are put for two minutes in a warm foot bath (100° to 106° F.); then for one minute in a cold one (the water must not be below 55° to 59° F.). And this is done three times, the third application of the cold water being the end of the bath.

Hot foot baths are often most useful in cases of suppressed or painful menstruation, but they are, after all, only sedatives, and should only be used when required. During the menstrual period no cold foot baths can be taken. In fact, at such times the water treatment is only admissible in a greatly modified form, and it is best to suspend it altogether.

### **Walking Barefoot on Wet Grass, according to Kneipp.**

This has become one of the most popular parts of Kneipp's treatment. If anyone goes barefoot, or wears sandals out of regard for his health, he is at once known to be a follower of Kneipp. Yet the plan did not originate at Wöris-hofen, but it forms part of Rikli's system of light and air, or "Atmospheric" treatment, and it was recommended by the other advocates of the physical and dietetic treatment of disease long before anyone had ever heard of Father Kneipp. Dr. Munde says, in his book entitled "Hydrotherapie," p. 230: "I have often treated cases of obstinate constipation very successfully by ordering deep foot baths of cold water,

and by making my patients walk barefoot on a cold, wet floor — especially in the morning on the grass, before the dew dries.”



Fig. 99. Walking Barefoot in Wet Grass.  
(A lady in the Wörishofer costume.)

Walking barefoot in wet grass — it does not matter

whether the wet is caused by dew, or rain, or by pouring water on it — is a means of hardening which not only relieves the head, and the pectoral and abdominal organs, but also strengthens and braces the feet. It is the most natural of all foot baths, and its effect is further increased by the accompanying effect of the air and light on the system, and by the exercise it involves.

The length of the time for running in the grass varies from ten to forty-five minutes. You begin with a short time, and increase it from day to day. The feet must not be dried when you have finished — this must be particularly noted — but quickly cleaned of any dirt, etc., that may cling to them, and then put on perfectly dry stockings and shoes. Do not, therefore, have wet stockings, and be careful that you put them in a dry place when you take them off. After clothing the feet, it is well to take exercise on dry ground until they get quite warm. A quarter-of-an-hour should suffice for that. Do not let cold feet prevent you from indulging in the exercise.

The effect of walking barefoot in wet grass is similar to that of a cold foot bath, and it is to be recommended for the same ailments. The regulation of the distribution and circulation of the blood which is brought about by walking barefoot has an excellent influence on the entire process of life, strengthening the system to withstand variations of climate, and to endure the nervous strain of everyday life.

It cannot be sufficiently praised for the cure of diseases of the head, eyes, ears, nose, neck, throat, larynx, breast and abdomen (stomach, intestines, liver, spleen, kidneys and bladder), etc.

Enervated, weakly, convalescent people, etc., should begin the exercise on dry ground, well warmed by the sun, beginning, say, with five or ten minutes, and increasing the time as they get stronger, and only taking to wet grass when they find that they possess sufficient power of reaction.

"Walking in wet grass is worthy of the nobility," says Father Kneipp. "There is scarcely anything more agreeable than going barefoot in wet grass, and the longer the better. . . . It may very well be compared to a plaster, which draws all the bad matter into the feet, and there expels it."\*

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\* I made my own first experiment in walking barefoot in 1883, at the famous institute at St. Gallen, in Switzerland. Nothing was known of Kneipp at that time.

## Walking Barefoot on Wet Stones. Kneipp's Treatment.

Walking barefoot on wet stones, as recommended by Kneipp, is pleasant and easier for many people than doing so on wet grass. It may be done at home, because all one needs is a small room (the paved floor of a yard, wash cellar, back kitchen, etc.)\* in order to practise this hardening exercise "with zeal and prudence." To wet the stones it is best to sprinkle them pretty evenly with a watering can of the coldest water — and then go to work. If the stones dry, as quickly happens in the summer time, sprinkle them again two or three times. People who suffer with the head may mix a little vinegar with the water.

You wander up and down, as Kneipp says, with "flying" strides, or, if you are confined to the space of four or five flags, you stamp about, as the vintager does on the grapes, or the baker on the dough. The proceeding lasts from three to fifteen minutes, according to the constitution, strength, age, and sex of the individual, but it is well to impose restrictions on oneself in the beginning, and not trample on the stones for more than three to five minutes. Healthy people — really healthy, not imaginary — may enjoy the pleasure for a longer time, even up to half-an-hour, if the monotony of the exercise does not make them leave off before.

"Stone treading" is good for people with chronically cold feet, catarrh, trouble in the neck, congestion in the head, etc. For the rest, the directions as to clothing and movement that we gave in connection with walking barefoot in wet grass apply here also.

## Walking Barefoot in Freshly-fallen Snow. Kneipp's Treatment.

Walking barefoot in fresh snow has a much stronger

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When I was in the South American tropics, I walked and rode barefoot, like all the "paisanos" — a circumstance which conduced greatly to my health. In riding, the spurs are buckled on to the naked feet; amongst the cavalry everybody, from the general to the rank and file, followed this admirable custom, as I especially noticed in Paraguay.

Certainly it looks peculiar, and rather comical, to see a gold-laced and buttoned officer of high rank, with golden epaulettes the size of a small carriage wheel, and in a uniform made on the model of the French army, sitting on a high horse with naked, spurred feet — but it is healthy.

\* Inside a room you can make a wet track with a number of wet towels or sheets.



effect than either of the two preceding exercises. But the snow must be freshly-fallen — that is the chief point. March and April snow has the most effect. It must be soft, and lie like dust on the ground, not be frozen, stiff, and hard. Snow walking generally lasts three to four minutes. Father Kneipp writes as follows about it:

“I know many a one who has walked in the snow with bare feet with the best of results, for a half, a full hour, and an hour-and-a-half. The first minutes require a little effort, afterwards there is no trace of discomfort or sensation of exceptional cold.

“Sometimes it happens that toes that are too tender, and not used to exposure to the air, cannot stand the cold of the snow, and they get snow fever, that is to say, they get dry, and hot and swollen, and have burning pains. One need not be alarmed; the matter is of no consequence, and is soon remedied by steeping the toes frequently in snow-water, or rubbing them softly with snow.

“The exercise may be replaced in autumn by walking in grass covered with hoar frost. In this case the feeling of cold is much keener, as the body at this period has not been sufficiently weaned from the heat of the summer. Even in winter the walk in the snow may be replaced by walking on flags that have been covered with snow-water.”

The same directions as to dress and movement which we gave for walking in wet grass apply here. Cold feet should not prevent one from indulging in the exercise. On the contrary, it is just then that the practice is most needed, in order to draw away the blood from the upper regions by warming the feet.

### **Foot Bath of Hay and Flowers. Kneipp's Treatment.**

(See under “Warm Foot Bath. Kneipp.)

The hay and flowers foot bath, as recommended by Kneipp, lasts about fourteen minutes, as I have already explained. It develops plenty of heat, relieves and strengthens the feet. People who suffer from perspiring feet will find great relief from this kind of bath.

### **Bath of the Soles of the Feet.**

The “sole bath” (with water about quarter-of-an-inch deep) is taken in cold water (51° to 62° F.), and is recommended in

cases of chronic cold feet, perspiring feet, cerebral congestion, pains in the head, teeth, ears, or eyes, giddiness, etc. Its application does not differ, in general, from that of the cold foot bath. In order to derive full benefit from it, the feet should be warm; if they happen to be cold, they must be warmed before bathing, by means of a foot vapour bath, or by walking or running. The feet must be rubbed together whilst bathing, and the bath must be finished as soon as they are warm. Then they are rubbed dry, and warmed again by exercise, or in bed.

## 8. The Leg Bath.

The "leg bath" is best taken in lukewarm or slightly warmed water, in an oval vessel, before which you sit in a chair, or, if it is very high, on a table. As the bath is generally taken for a local trouble (tumours, abscesses, scabs, eruptions, dislocated bones, paralysis, white swelling, etc.), only the bad leg is bathed. However, this bath is inconvenient in many respects, apart from the fact that diseased legs generally need to be kept in a horizontal position, it is therefore best to have recourse to leg bandages, leg vapour baths, or half-length baths, and especially full baths, for the successful treatment of a bad leg.

## 9. The Hand Bath.

The "hand bath" is subject to the same directions as the foot bath. Like the feet, the hands are part of the system, in which important blood vessels terminate, and from which, therefore, it is possible to act on the blood life of the whole body. (See also under "The Foot Bath.") Hand baths either serve a local purpose, or they may be taken in order to relieve the excessive pressure of blood on the inner vital organs.

Wounds, abscesses, etc., need to be treated with lukewarm ( $74^{\circ}$  to  $84^{\circ}$  F.) or slightly heated ( $63^{\circ}$  to  $73^{\circ}$  F.) water, because the intention is to soothe, cool, and allay inflammation. In order to cure congestion at the heart, lungs, or head, by drawing away the blood, you take quite cold water ( $50^{\circ}$  to  $63^{\circ}$  F.). If both hands are bathed together, the effect is, naturally, stronger than when only one hand is bathed. Hand baths

are an excellent means of curing nervous palpitations, and, in general, of moderating the beat of the heart. As a rule a quarter-of-an-hour is sufficient to attain thorough success. They are also recommended in cases of nervous cough, asthmatic attacks, short breath, etc. A basin or similar vessel, a cushion to lay one or both arms on, and water, are the only things necessary for taking a hand bath.

It is also useful to combine cold (i.e., relieving) hand baths with relieving foot baths, in order to give a still greater relief to the vital organs. On the other hand, in cases of danger, where an immediate attraction of the blood from the inner vital organs or other parts (as, for instance, in apoplexy, hemorrhage of the lungs, rupture of a blood vessel, weakness of the heart, collapse, etc.) is required, it is well to apply hot ( $102^{\circ}$  to  $107^{\circ}$  F.) hand and foot baths. Put the patient on a convenient chair, and dip his feet into the foot bath and his hands into a vessel resting on his thighs. Bathe him thus for about six to twelve minutes, afterwards pour cold ( $62^{\circ}$  to  $66^{\circ}$  F.) water over his hands and feet, and then put him to bed, where hot bottles, wrapped in damp cloths, may be applied to his hands and feet, and stimulating bandages to his calves and arms, as well as a good body bandage.

## 10. The Arm and Elbow Bath.

The "arm" or the "elbow" bath is just as seldom used in hydrotherapeutics as the leg bath. It is more convenient, and quite as useful, to operate, either locally or for relief, by partial bandages.

To apply the "arm bath" successfully in cases of rheumatism, gout, paralysis, etc., bathe the suffering arm two minutes in hot ( $100^{\circ}$  to  $107^{\circ}$  F.) water, and then one minute in cold ( $62^{\circ}$  to  $66^{\circ}$  F.) Do this three times, ending, after nine minutes, with a cold application.

The elbow bath is used for relieving purposes in inflammatory affections of the hand (for instance, whitlow). It is then quite cold.

As to the hardening influence of a cold arm bath, see under the heading "Standing in Cold Water. Kneipp's Treatment." Arm and hand baths, like foot and leg baths, are never taken alone, but always in combination with other kinds of water treatment.

## 11. The Head Bath.

The "head bath" is taken lying on the back, on a mattress spread on the ground. At the head end of the mattress there is a tin wash basin, in which the back of the head is dipped. The head rests either on the bottom of the basin, or on a small folded towel that has been previously placed at the bottom of the basin. Cold ( $62^{\circ}$  to  $73^{\circ}$  F.) water is used, and the bath lasts five, ten, or twenty minutes, or in some cases even longer. Every four or five minutes the patient turns his head, so as to be able to rub the side that has been dipped with his hands, and then lays it in the water again, sometimes more on one side, sometimes on the other. He must be careful after each change of position to rub the side of the head that was last in the water. Women should draw their hair from the back and bind it in a net in front, so that it will not dip in the water.

The head bath is recommended in cases of gouty and rheumatic trouble in the head, deafness or difficult hearing, failure of smell or taste, pains in the eyes, inflammation of the eyes, etc. As a rule, severe pains are felt during the head bath — the sign of a favourable crisis, often complicated with feverishness. Continue the bath in spite of this — once a day, or once in two days — and in the meantime cover the head with thick, stimulating bandages, or put on it what is called the "head pack." (See pp. 502, 503). If an abscess forms on the head and breaks out, the cause of the pains will, as a rule, disappear, and smell, taste, hearing, etc., will be restored. Whilst the inflammation and suppuration last, of course there must be treatment for inflammation. The baths must be lukewarm ( $73^{\circ}$  to  $84^{\circ}$  F.); cooling swathings or anti-inflammatory head bandages must be applied; and before and during the crisis, in addition to the head baths, there must be a suitable stimulating or relieving treatment of the whole body.

## 12. The Eye Bath.

The "eye bath," which is usually taken at a temperature of  $74^{\circ}$  to  $84^{\circ}$  F. (according to Kneipp, in perfectly cold water), is used for the local treatment of eye troubles, especially inflammation of the eyes. The treatment is simple. Take a



wash basin, or other convenient vessel, fill it with water at the required temperature, dip the forehead and eyes into it, open the eyes under water, and either keep them open in it as long as you can without strain, or else keep them open in it for five or six seconds; then stand up, wink the eyes so as to squeeze any water out of them; after about a minute dip the forehead and eyes again, and go on as before. They say that "all good things are three in number," so you may dip the eyes a third time as before. The eyes are strengthened and refreshed by these baths.

People who are comparatively healthy may take these eye baths twice a day with great benefit to their eyes. They are also good for people with weak eyes.

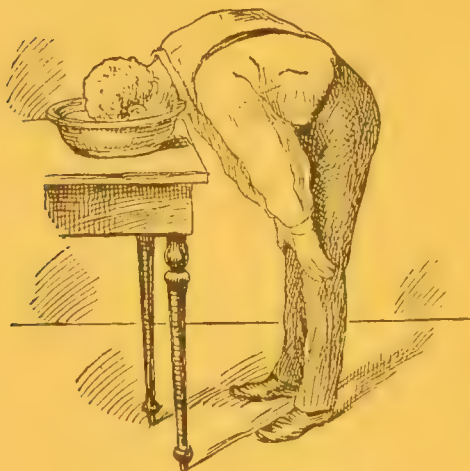


Fig. 100. The Eye Bath.

In cases of inflammation of the eyes of any kind (the "scientific" names of them do not matter), these baths should be taken from six to twelve times a day. The more violent the inflammation the higher must be the temperature of the water. (73° to 89° F.)

If inflammation of the eyes follows as a consequence of the stimulating eye bath in cold water (56° to 66° F.)

that has been taken, perhaps every day, this must be regarded as a favourable crisis, and as an effort of nature to dislodge the morbid matter that has settled in the head. In such cases cooling eye baths (77° to 86° F.) must be taken to moderate the inflammation; cool, soft bandages must be applied to the eye in the intervals, and a general relieving treatment must be adopted (vapour baths, stimulating full and three-quarter length swathings, foot baths, calf bandages, etc.).

People with congestion, who cannot very well bend down, should use the glass eye baths as sold by chemists.

### 13. The Mouth Bath.

The "mouth bath" is best taken quite cold — as cold as the teeth can bear it. The water is retained in the

mouth until it gets warm, then you spit it out and take a fresh mouthful. In cases of disease of the teeth (abscesses, periostitis), inflammation of the mouth and jaws, and of the internal ear (which communicates with the throat by means of the Eustachian tube), evil and stuffy taste in the mouth, enervation of the mucous lining of the mouth and throat, etc., the mouth bath is of great service. In applying it for inflammation, the general rules must be observed; the more violent the inflammation the warmer ( $77^{\circ}$  to  $86^{\circ}$  F.) must the water be.

As a rule the mouth bath should last five, ten, fifteen minutes. In a feverish, inflamed condition, it is taken every one or two hours, according to circumstances; chronic invalids may take it about three or four times a day.

It should be judiciously combined with a good relieving treatment.

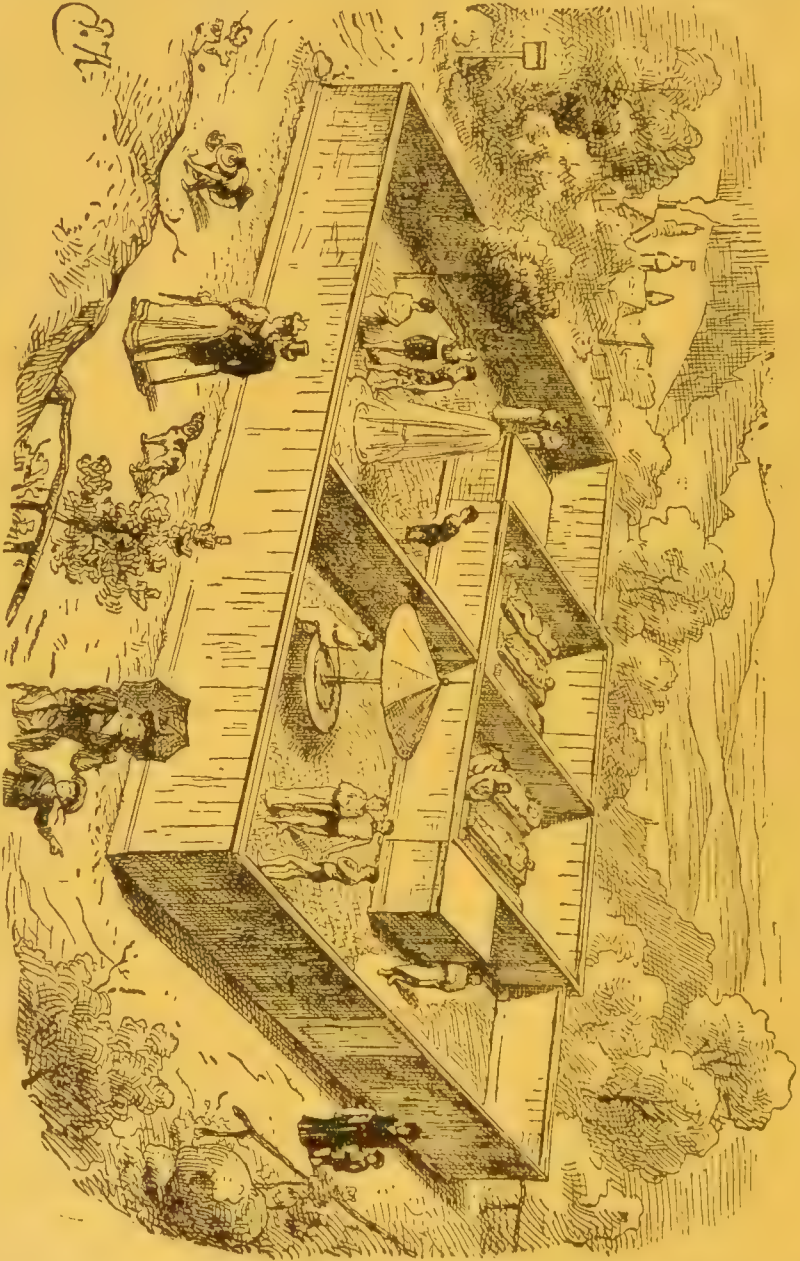
## 14. The Air and Light Bath.

I have already spoken frequently, in the First Part of the book, especially in Chaps. 6, 7, and 26, of the effect of air and light on the human organism, in health as well as in disease. In the present Chapter I have the pleasant task of introducing the reader more intimately to the details of the air and light bath. I say "the pleasant task," because air and light are the only healing principles in the divine — that is, natural — pharmacopœia which have a universal application, or are suitable for every kind of disease. In order to put the importance of these principles in its proper "light," my artist has given us two excellent illustrations (Figs. 101 and 102) of the treatment.

Whoever wishes to take these air and light baths, so stimulating and quickening to the nervous system, and so helpful in the formation of blood, must remember that he is a more or less diseased victim of civilisation, and so must begin his bathing in air and light very prudently, and take care not to overdo it at the commencement. He must first choose a spot in warm weather, in the open air, which is not directly exposed to the sun's rays, but the air of which has been previously warmed by them. Then, without taking off his underclothing, or at least wearing a bath mantle, let him walk slowly backwards and forwards for a few minutes, barefoot or in sandals, and he can afterwards let the air

and light play on his entirely naked body, though, once more, only for a few minutes. People who suffer from congestion in the head should cover it with a light, and light-

Fig. 101. The Air and Light Bath. (The women's enclosure for taking air and light baths is to the left of the observer, and the men's division to the right.)



coloured, hat. That will be enough for the first day. The time may be increased every day, but a sun bath must not be taken until one is accustomed to the air bath, and can



bear it well for some time. The lower the temperature of the air the shorter must the bath be, and the more brisk the exercise during and after it. In such cases three or four minutes are enough. Nervous people, especially "imaginary healthy" people, will feel rather queer after a short bath of two to three minutes in cool air. Strong persons can easily take a short air bath at a temperature of  $41^{\circ}$  to  $44^{\circ}$  F., only they must be careful to warm themselves by exercise after they have dressed. Weaker people should not bathe in air at a lower temperature than  $50^{\circ}$  to  $55^{\circ}$  F. On fine, warm, sunny days it is most necessary to count the minutes carefully — your feelings should be decisive, and the thermometer only consultative, in such cases. Give over bathing when enjoying it best.

People who cannot expose the whole person naked to the air and light, should at least expose their naked feet and lower part of the limbs to the sun's rays at the open window of their chambers. Everybody who is in earnest can do that. In taking walks, people should take off their coats and vests, and, if possible, shoes and stockings too, so that the air and light may get into the interior of the body through the skin. In particular do not grudge children the pleasure of running about, as often as possible, lightly clothed, bareheaded and barefoot. It will make them weather-proof and hardy for their whole lives.

As to the effect of the air and light bath, see especially p. 284 et seq.

## 15. The Sun Bath.

The "sun bath" is more powerful in action than the air and light bath, and it is therefore generally left to a natural physician to prescribe it.

Sensitive, excitable people should take a sun bath with extreme caution, and only for a few minutes; they must desist immediately there is a feeling of excitement and uneasiness. Stronger and hardier people may take a sun bath without fear, even quite naked, but it should never last more than three-quarters of an hour.

The following are the directions for taking the sun bath. A number of straw mattresses, with pillows, are laid on the wooden floor of a long enclosure — raised about twenty inches above the ground, eleven to seventeen yards long, eight to ten



yards wide, and with board walls two to three yards high, which either faces the south, or, still better, is open to the sun on every side. A woollen blanket is spread on one of these mattresses, and the patient lies down on it. His head is shaded by a small bench, not too narrow and not too low. The patient must turn himself — it is best to do it about every five minutes — first on his right and then on his left side, now on his breast and again on his back, so as to let the sun act equally on every part of his system. After a time, a quarter, or half-an-hour — according to the amount of effect desired — the patient is wrapped up in the blanket, just as in the dry wrap (see this in the contents), and left in it until (about ten to fifteen minutes) he feels the perspiration abating, or feels that he has had “enough.” He is then stripped of it, and given either a full bath, at a temperature of  $86^{\circ}$  to  $91^{\circ}$  F., a half-bath at  $82^{\circ}$  to  $86^{\circ}$  F., or a body bath at  $73^{\circ}$  to  $82^{\circ}$  F., the latter being preceded by a sprinkling with water at  $68^{\circ}$  to  $73^{\circ}$  F. In the full bath the patient may also be massaged for five to ten minutes. Weaker persons must be dried after the bath, and when they have put their clothes on they should take a little exercise to warm themselves. Stronger people may let the sun and the air dry them, then bathe again and put on their clothes without drying; or they may put on their things immediately after the air has dried them, or immediately after the first bath.

A great number of modifications are possible in the use of the sun bath. If it is merely for the purpose of causing perspiration, the patient is not first exposed nakedly to the sun, but is immediately wrapped in the blanket, which is, however, simply folded once over the body in order to let the rays of the sun act through it. The closing of the wrapper at the neck and feet and sides must be carefully seen to, so that the formation of perspiration may not be interfered with by draughts. The patient is then turned over about every five minutes in his dry wrapper by the attendant, and laid, now on the breast, now on the back, and on the right and left sides in turn, until he feels that he has had “enough.” He then takes his cooling bath.

The sun bath is an excellent cure for disorders of the blood and humours, and catarrhal conditions of every kind. It is recommended in cases of poverty of blood, anæmia, tuberculosis, scrofula, rachitis, syphilis, mercurial disease,

rheumatism, gout, morbid obesity, and for all kinds of digestive ailments and derangements of the metabolism.



Fig. 102. The Sun Bath.

The sun bath is a real "specific" for that widespread ailment anæmia. The blood, which is changed from its

normal composition on account of the scarcity of red corpuscles, is attracted to the skin by the rays of the sun. There the chemical action of the rays promotes the formation of red corpuscles by oxidation, quite apart from the beneficent physical effect of the rays in warming the pale, bloodless, cool skin so pleasantly. The greatly-increased stimulation of the circulation in the skin promotes its respiration and the entire process of metabolism; this increased movement of the blood reacts favourably on the growth and nourishment of the tissue of the cutis or under-skin, the glands, etc., and finally brings about the cure of disease of the deeper joints and bones.

However, be moderate in everything. Excess is always injurious, and so it is in the case of the sun bath. Excessive indulgence in it causes over-excitement, which is followed by a relaxation of the system. To perspire too long weakens the system, and reduces its power of reaction for the cooling treatment that is to follow in the shape of a bath. It is best, therefore, to be taken out of the blanket when you feel at your best, "in the sweat of your brow," just as a meal does most good if a man leaves off eating when the food tastes best. It is obvious that air, and light, and sun baths, taken at one of the elevated cure institutes, are much more effective and serviceable than those taken at an ordinary level, on account of the purity and richness in ozone of the mountain air.

A few observations on an "elevated climate" will perhaps be welcomed by the reader at this stage.

An elevated climate — which is distinguished from that of the lowlands by a reduced pressure of the air — causes a freer movement of the blood at the surface of the body in direct contact with the air. More blood is poured into the whole surface of the skin, the free mucous coats and the lungs, thus relieving the internal organs and the larger blood vessels from pressure. Hence the heart beats more vigorously, the pulse is stronger and quicker, the breathing deeper and fuller, parts of the lungs that otherwise seldom or never act being forced to take their part in the respiration. This causes strengthening of the lungs, which are thus enabled to dislodge and eject morbid deposits and emanations. The secretion of the mucous membranes is increased, and the contents of the bronchial tubes are cast out, owing to deeper breathing.

The elevated climate also acts as a stimulus to the nervous system and the metabolism, owing to its cooler temperature. The action of the sun is more intense in consequence of the lesser density of the atmosphere, and frequent showers give a greater purity and freedom from dust to the air. Hence the majority of people who suffer from the lungs, or heart or nerves, and who are weakened by long-standing disease, will find relief and cure in a mountainous climate.

The beneficent influence of the mountain air on the human organism varies according as we are dealing with wooded hills of a medium height, or with high mountains. Mountains of an average height of 1,300 to 1,600 feet have no particular effect on the action of the heart, the respiration, production of heat, and metabolism, especially if they are surrounded by wooded hills which keep off the raw winds. (This is the case, for example, at Schwarzenberg, in the Saxon Erz mountains — 1,584 feet above the sea-level — where the author directed the Institute for the Natural Curative Treatment, "Ottenstein Baths," for a long time.) Hence an altitude of this kind is the most suitable for more delicate and weakly people in search of a tonic and for invalids. At a height of 1,600 to 3,200 feet the air is drier, and the place is exposed to greater changes of temperature, and so it has a more powerful effect on the physiological processes; such places are to be recommended to stronger patients, with more power of resistance. The real mountain climate — on mountains more than 3,000 feet above the sea level, more suitable for consumptive, asthmatic, anæmic and poor-blooded patients — stimulates the vital functions and the combusive process of the living substance, or the metabolism in the most intense fashion, and so can only be recommended to those — patients who have strength enough to meet the "healing" or "recuperative crises" (see p. 217) which are sure to follow.

## 16. Sea Bathing.

It would take me far beyond the scope and the limits of the present book if I were to describe, with any completeness, in the most concise terms, the application and physiological effect of baths that do not belong, in the stricter sense, to the system of water-cure. Possibly I shall have an oppor-



tunity of doing so in a special work. I must therefore confine myself to a brief sketch of the essential points, in enumerating and describing the baths that still remain to be treated in this section.

Even in ancient times, sea bathing, or at least the sea air and the drinking of sea water, were well known for their healing properties. Seas have different temperatures and a different proportion of salt at the same season, according to their width. The temperature of the North Sea, for instance, varies between 55° and 88° F., in the bathing season (July to October); on the whole, the average temperature of this sea may be put at 64° to 68° F. at that time of the year. A sea bath, on account of the salt it contains, is a brine bath (see this in the Index) of extra strength, but its importance lies chiefly in the form in which its effect is felt. In order to resist the "play of the waves," their continual dash and rebound, a considerable amount of vigour is required in the bather, and as this applies to many different parts of the body, there is a good deal of gymnastic exercise in sea bathing. The symptoms of reaction that are set up on suddenly dipping into the sea may very much resemble those that follow wet massage, or the putting on of a cold wet linen sheet. It gives a kind of shock to the nervous system, which finds expression in a cold shiver. Breathing is difficult, one almost gasps for breath; the pulse is weak and quick, the whole surface of the skin pallid and puckered. A reaction gradually comes. The blood vessels in the skin expand again through the blood streaming back from the interior of the body to the periphery, the skin reddens, the breathing is easier and more free, and a comfortable feeling of warmth is produced. This reaction is caused by the thermal stimulus of the salt water and the mechanical stimulus of the waves.\*

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\* As many of my readers would probably like to hear a little more about the physiological action of sea bathing, I will add the following observations:

That cold water, when it suddenly deprives the body of a good deal of warmth, gives a shock to the nerves and blood vessels, which is followed by a reaction that, if frequently repeated, raises the energy of the vital organs, increases metabolism, and hardens the system by making its tissues firmer, is already well understood by the reader. But sea water considerably augments the reaction by the action of the solid elements it holds in solution, its salt, which (in solution) penetrates through the skin into the body, and stimulates the absorbent blood vessels to increased activity. The direct stimulation of

As a rule, some kind of costume is worn whilst bathing, and different places or times are assigned to men and women. The bath may last from half-a-minute to an hour, or even more, according to the constitution, age, and sex of the bather. Whether you should bathe before or after meals, and whether you should rest or take exercise after the bath, depends on individual temperament and the nature of one's disease.

Critical symptoms are quickly set up by sea bathing, such as itchy eruptions (bathing fever), diarrhœa, constipation, vomiting, feverishness, headache, and sleeplessness, even fainting, etc. These are not alarming symptoms, as the attentive reader already knows, but the absolutely necessary consequences of a treatment which determines the expulsion of morbid matter.

The beneficent influence of sea bathing is further increased by the well-known bracing properties of the sea air. Sea air is never dry, is always free from noxious effluvia, and more temperate — fresher in summer and less cold in winter — than the inland air. It is impregnated with salt, and by this means furthers the effect of the bathing. At the sea level, which is of course the lowest level on the surface of the earth, the air is more condensed. But whereas in the interior of a country the lowest layers of the atmosphere are the most unhealthy of all, because they receive the miasmatic exhalation from the soil; over the surface of the sea, where they receive no poisonous additions, they are richer in oxygen than the land air on account of their greater condensation. Moreover, the sea air, according to the researches of scientists, contains less carbonic acid than the air of the level land. Strong winds still further increase the bracing quality of sea air.

The sea air stimulates respiration and assimilation, and improves the appetite and digestion. It is therefore sought,

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the skin by the particles of salt which cling to it after the bath, contributes materially to the increase of the respiration and exhalation of the skin. In the third place, the dashing of the waves, which acts on the body like one of Kneipp's lightning douches, also helps to intensify the reaction. The water, continually coming into fresh contact with the body, helps to relieve it of its warmth, promotes the absorbent property of the epidermis by the kind of massage which the dash of the waves exercises on the whole surface of the body, and finally impels the muscles, which have to resist the constant pressure of the waves, to strong contractions. By means of all these processes the reaction is strengthened, and the loss of heat and subsequent regaining of it are increased.

independently of sea bathing, at watering places. These offer, it is true, a mixture of sea and land air, but the former is largely predominant.

Sea bathing is recommended for digestive ailments, chronic nerve trouble (especially hypochondria), hysteria, sexual neurasthenia (impotence, pollution, etc.), for skin disease, gout, rheumatism, scrofula, hemorrhoids, chronic female maladies, weakness from loss of humours, etc.

On the other hand, it should be avoided, or at least practised with extreme caution, in cases of excessive fulness of blood, heart disease, tendency to apoplexy and blood spitting, long-standing asthma, internal suppuration, hypersensitiveness of the nerves, etc.

And we must not fail to appreciate the influence of the sea on the eye and feelings of the observer by its constant change from motion to calm, and its play of light and colour. Very striking is the remark of Humboldt, in his famous "Cosmos:"

"The man who, awakened to mental life, builds a world of his own within him, is filled with an elevated idea of the infinite by the spectacle of the free, open sea. His eye wanders to the far horizon, where water and air seem to blend in the mist, on which the stars rise and are renewed before the voyager. A breath of sad longing mingles itself with this eternal drama of change, as in every instance of human joy."

## 17. The Brine Bath.

Brine baths may be prepared with natural brine — that is, of unchanged brine water, sometimes heated, as it springs from the ground — or may be artificially prepared with salt, that has been obtained by evaporation,\* and is dissolved in warm water for use in bathing.

The physiological action of brine in a bath (full bath), at a temperature of 100° to 110° F.,\*\* and lasting from half-

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\* Factories for preparing brine or salt contain what are called "evaporating walls," high, broad, and long spiny walls, from which the natural brine trickles down in order to evaporate and free itself from impurities. The air of these salt works is also used for cures.

\*\* In taking what is called a "thermal bath" — that is, a natural warm bath — a temperature of 88° F. is more than sufficient, because the carbonic acid contained in the brine has of itself a warming effect on the skin.

an-hour to an hour, consists essentially, apart from the thermic effect, in a stimulation of the sensitive peripheral nerves, which pass it on to the two nervous centres, the brain and the spinal cord, as in the case of all other nerve-connections. These, in their turn, bring about a wholesome stimulus of the general life process by their accompanying action on the function of the heart, respiration, the radiation and generation of heat, and digestion and excretion. The action of the brine bath is, on account of its salt, similar to that of sea bathing, with the difference that no reaction — a warmth produced by a cold stimulus — is caused by the warm brine bath.

Brine baths contain the largest proportion of solid matter, as they sometimes contain up to 30 % of salt, hence medical men prescribe brine baths very frequently in a concentrated form, for the purpose of inducing a caustic action in cases of skin disease, long-standing eruptions (dry scabs), suppuration of bones, &c., just as they did formerly with their favourite caustics, caustic potash, muriatic acid, &c.

Besides salt, there are other "effectual" (!) ingredients in brine, hence a distinction is made between simple, ferruginous, alkaline, iodised and bromidised salt water. In different forms of disease, "science" prescribes now one and now another of these mineral-salt waters.

Mother-lye is often added to brine baths to increase the effect. (Mother-lye is the fluid that remains in the boiling pans in making salt artificially, after the water has evaporated and the salt has crystallised and been removed. The fluid is transparent, of a brownish-yellow tinge, a little thinner than oil, and is fatty.)

"Science" recommends brine baths, especially for scrofulous and rachitic complaints, syphilis, tuberculosis, rheumatism, skin disease, and female complaints.

## 18. Mineral Baths.

Mineral baths, brine, iron, steel, sulphur, iodine, and carbonic acid baths, &c., for the healing of "the ills of the flesh," are as numerous on the Continent as the sands of the sea. It is supposed that, in virtue of the law of diffusion, the solid matter held in solution in a mineral bath is absorbed by the skin through the capillaries, and taken into



the blood. However, the learned are not yet quite agreed on this point, and it is said to have been found, after exhaustive experiments, that the human skin absorbs very little water, and so very little of the matter it holds in solution, but that, on the other hand, it lets small quantities of vapour, and especially gases (sulphuretted hydrogen, carbonic acid, &c.), penetrate deep enough into the tissue of the cutis to reach the extreme peripheral terminations of the blood and lymph vessels, and thus have an influence on the entire organism. In any case, though the effect of the little solid matter absorbed by the skin during a mineral bath must be very slight, we must not fail to trace the beneficial stimulus that the system derives from a mineral bath, the curing of certain complaints, etc., to other sources. It is a fact that a change of surroundings is often sufficient of itself to relieve or even to cure a complaint. At a cure or bathing place there are additional factors to be taken into account — regular habits, properly prepared food, abstinence from intoxicating and exciting drinks, regular sleep, plenty of exercise in good air, a beneficial mental stimulus (quite different from every-day life), &c., but especially a certain amount of care of the probably neglected skin by the use of the baths. All this is well calculated to improve the condition of the patient and cure his ailments.

For the use of natural or artificial mineral baths (in the form of warm, full baths), the same general rules apply that I have already given in Chap. 2, Part II. But in each case the temperature of the natural hot springs, and the constitution, age, sex, and complaint of the individual, will necessitate special directions with regard to the duration of the bath, what one is to do before and after it, diet, exercise, rest, &c.

## 19. The Wave Bath.

The effect of the "wave bath" consists in strengthening the nervous system by combining the thermic stimulus of cold water with the mechanical stimulus of wave action, (See also under "Sea Bathing.")

Wave baths are taken in the sea, in the river, and in metal baths and wooden tanks. The latter are taken into a river, and provided with a steep wooden bottom, the sides

of which are composed of rather high boards. The patient sits with his face towards the stream, and clings either to wooden handles in the boarded sides of the apparatus, or to a post with a wooden cross-piece running up from the middle of its floor.

The rules for cold baths apply generally to the wave-bath, but the use of this kind of bath is only to be recommended to the stronger and more vigorous. Weakly and nervous persons must not indulge in it.

## 20. The Moor Bath.

At many bathing-places, the mineral "ooze," or marshy water which is found in the neighbourhood in more or less large deposits, is used in the baths. Besides concentrated mineral substances and the fatty marsh soil, it contains a good deal of vegetable matter, which, being in continual fermentation, generates a great quantity of gas (carbonic acid, carburetted and sulphuretted hydrogen, &c.). There are a good many different kinds of this marsh or mineral ooze, such as sulphur, iron, salt, carbon, and earthy mineral ooze.

For use in the bath, the marshy earth is freed from its hard contents (stones, &c.), ground down fine, warmed, thickened into a sort of paste with hot mineral water from a corresponding source, and regulated as to its temperature. "Moor baths" are taken at a temperature of 86° to 100° F., for from a quarter to three-quarters of an hour, either as full or half-baths. Hot ooze, over 100° F., is only used for partial baths or bandages. A marsh bath should be followed by a lukewarm wash, or a cleansing bath of ordinary well or spring water, at a temperature of 92° to 93° F.

It is recommended in cases of gout, rheumatism (rheumatic swelling of the limbs), neuralgia, paralysis, dislocation of bones, external growths, &c.

## 21. The Sand Bath.

Sand, warmed artificially or by the sun, serves as a remedy for rheumatism, neuralgia, and paralysis, at many cure resorts. Sand baths are taken both at the seaside and at inland places. After the upper layers of the sand in the open air have been warmed by the sun, you dig a "grave"

in it, and let the sun shine well into this for an hour or two. Then the bather gets into the "grave" naked, and is covered up to the neck with a layer of sand from two to two-and-a-half inches thick. The bath lasts, as a rule, a quarter to half-an hour, sometimes longer. The temperature of the bath is about 118<sup>0</sup> to 122<sup>0</sup> F. Partial sand baths (for the arms or legs) may be heated up to 134<sup>0</sup> F. The thermic stimulus, in conjunction with the mechanical stimulus of the sand, considerably stimulates the action of the skin, relieves the internal organs from pressure of blood, and generally causes a welcome outbreak of perspiration. The patient afterwards takes a cleansing bath at a temperature of 86<sup>0</sup> to 90<sup>0</sup> F. Weakness, heart-disease, and extreme nervousness, must prevent the application of the sand bath.

## 22. The Hay and Flower Bath. Kneipp's Treatment.

The "hay and flower bath," as recommended by Kneipp — a full-length bath, of course — is taken at a temperature of 92<sup>0</sup> to 95<sup>0</sup> F., and serves for the purpose of releasing and expelling foreign matter. Kneipp advises taking the bath only once or twice a month, and not to prolong a single bath beyond half-an-hour. First have ten minutes in the warm herbal bath, then five to six seconds in a cold full bath, then another ten minutes in the herbs, and so on, finishing up with the second or third cold dip. (For the preparation of the hay and flower bath, see under "The Warm Hip Bath," Kneipp's Treatment.)

## 23. The Oat Straw Bath. Kneipp's Treatment.

The "oat straw" bath (full bath), as recommended by Kneipp, is taken in the same way as the preceding: to last up to half-an-hour, and to alternate with short, cold, full baths. Kneipp recommends it for gravel and calculi. (For the preparation of the bath, see under "The Warm Hip Bath," Kneipp's Treatment.)

## 24. The Pine Leaf Bath.

The "pine or fir leaf bath" consists of a warm water bath (full length), to which is added a fluid that is obtained

by distillation from the needle-shaped leaves of the pine or fir, fresh-gathered daily. This extract, also called pine balsam, is almost transparent, of a yellowish tinge at first, turning a greenish-brown after standing some hours; has a pleasant, refreshing, bracing, resinous, aromatic smell, and contains etheric oil, bitter resinous matter, tannin, and formic acid.

The immediate effect of the pine bath, which is now very much used in cases of scrofula, gout, rheumatism, paralysis, debility, skin complaints, abdominal and sexual disorders, etc., is as follows: The skin reddens in the bath, and the patient often, after a few baths, feels an itchy, prickly sensation, even a burning in the whole system. The direct stimulus of the nerves and blood vessels of the skin causes a beneficial increase in the function of the skin. The pulse becomes more rapid and fuller, without the action of the heart being increased to drive the blood, provided always that the temperature and the strength of the bath have been carefully adapted to individual needs.

After a long continuance of the baths, the functions of the excretory organs (skin, intestines, and kidneys) is increased by means of the beneficial ingredients that have passed from the pine leaf extract into the humours of the body, stoppages and disorders of the circulation are cured, swollen glands are softened and lessened, foreign matter broken up and expelled, digestion and assimilation improved, the muscles grow firmer, the nerves are soothed, the colour of the skin becomes fresher and more natural, the sleep is more refreshing and the heart lighter. Critical symptoms are not excluded; in fact, it is not unusual to experience a tired feeling after using the baths, even after several weeks' treatment.

The bath is generally taken at a temperature of 86° to 100° F., and generally lasts ten to forty minutes, according to individual temperament and complaint. The quantity of the extract to be added is also carefully determined according to the constitution, age, sex, severity and form of disease of the patient.

## 25. The Tan Bath.

"Tan-baths" are taken in the form of half-baths, at a temperature of 104° to 117° F., and last up to an hour. More or less oak bark, or "tan," and sometimes pure tannin (the



extract of oak bark) is added to the water, according to individual temperament and the effect desired.

Instead of oak bark, the bark of elms or willows may be used.

The action of these baths, apart from the thermic stimulus, lies in the astringent property of the tan, or rather of the tannin. The baths are recommended for gout, rheumatism, skin and sexual complaints (female ailments, flux, etc.), disorders of the humours, and a great number of metabolic derangements. The bath is followed by cooling treatment in the form of a lukewarm douche.

## 26. Bran, Leaves, and other Baths.

In order to reduce the irritation of the contact of the water with a very sensitive skin as much as possible, it may be necessary in many cases, for instance, in the case of burns, wounds, painful eruptions in the skin, excessive nervous sensibility (in hysterical, delicate women), etc., to give a protective quality to the water.

Bran is very good for this purpose. You put three to six pounds of it in a bag, boil it well in eight to sixteen pints of rain water, and then put the liquid into your bath (91° to 95° F.) Lime, two pounds, dissolved in boiling water and added to the bath; and clay, a half-pound, dissolved in boiling water, are also useful for this purpose. If milk were not so dear, it would be most suitable for making the bath smooth and non-irritant.

"Leaf baths" are taken in a large sack, into which the patient crawls, the leaves in it being heated to a temperature of 100° to 110° F. They are taken for the purpose of breaking up and expelling morbid matter.

Then there are "alum baths," which are applied locally for the cure of abscess in the thigh; "sulphate of zinc baths," "malt calamis baths" walnut leaf baths," "wine baths," "beer baths," "broth baths," "mustard baths," and "animal" or "blood" baths. But I shall pass over these, as they have only a "scientific" interest, and belong to the "order of the day."

## 27. The Electric Bath.

By an "electric bath" is meant the passing of a constant or uninterrupted current\* into the human organism by means of the water of the bath, whilst it is also subjected to an electrical treatment, either by applying electrodes\*\* to it, or by the ordinary battery for producing static electricity.\*\*\*

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\* If a plate of zinc and a plate of copper are put into a glass containing water and a little sulphuric acid, the wetting of the two different metals by the acidulated fluid, and the chemical decomposition that sets in, generate a quantity of "electricity," also called "galvanic electricity," after its discoverer, an Italian physician named Galvani. This arrangement of the two metal plates in the fluid is called an "open galvanic element," as the electricity generated gathers about the free ends of the pieces of metal, and so no electric current can be produced. The upper end of the zinc plate, that is not covered by the water, is in a negative electric condition ("negative pole"), whilst the other end of the zinc in the water is in a positive electric state. It is just the reverse with the strip of copper. The end of it under the water is charged with negative, and the other end with positive electricity ("positive pole").

If the positive pole of the copper plate and the negative pole of the zinc plate — both above the water — are now joined together by a metal wire, preferably of copper, the electricity that has accumulated about the positive pole (copper end) flows through the "conducting wire" to the negative pole (zinc end). This equalising of the electricity causes an "electric" or "galvanic current," and the arrangement of the two poles connected by a metal wire is called a "closed galvanic element." As long as the metals, zinc and copper, continue in contact with the fluid of the element, that is to say, if they are not taken out of the water, the equalisation of the electricity through the metal wire continues uninterrupted, owing to the contact and chemical decomposition of the fluid with the metals, and thus a "constant current" is caused by this unceasing process in the closed galvanic element. (A "constant" current is the same thing as "galvanic" current.)

\*\* When the conducting or connecting wire of a closed galvanic element is cut in the middle, so as to leave an end of the wire sticking to the end of each of the strips of metal, the electricity no longer gathers at the free ends of the metal strips, but in the two wires and at their free ends. These are now the poles. If the two are connected the circuit is complete, and the original condition restored. In order that the poles may have a better connection, they are flattened or enlarged at the ends, and the free ends of the wires, thus modified, are called "electrodes." The electrode that is connected with the zinc plate by the conducting wire is always negative, and is called the "cathode;" the electrode that is connected with the copper plate is always positive, and is called the "anode."

\*\*\* Static or kinetic electricity is generated by friction. The process can be best illustrated by an example. When you rub a stick of amber with a piece of silk, the amber receives the power of attracting little bits of paper, cork, etc. Resin, glass, sulphur, and other things, act in the same way. (Who has not attempted, when he was a boy, for instance, to pick up pieces of blotting paper, etc., with his celluloid pen-holder, or a stick of sealing-wax, that he had rubbed on the sleeve of his coat, without being conscious that

The electric bath is very useful when, in the course of electrical treatment, there is need to expose the whole body as evenly as possible to the galvanic current. It is done in the following way: Either both the metal pole-plates are put into the water in a "non-conducting" wooden bath, in such a way that the body of the patient will lie in the electric current passing between them, but without touching the poles, or else only one pole is put in the water, or it consists itself of a metal bath, and the other pole is outside the water, in direct contact with some part of the body of the patient. (For instance, with his hands, which rest on the electrode that lies across the bath over the surface of the water.)

Electric water baths are especially recommended for general nervous debility, in cases of weakness after abnormal loss of secretions or severe illness, in many forms of hysteria or hypochondria, convulsions (spasms, nervous twitches, etc.), inflammation of the nerves and neuralgia (sciatica, for instance), paralysis, from disease of the peripheral nerves or the spinal cord, muscular rheumatism, many kinds of chronic rheumatism in the joints, etc.

The duration and temperature of the bath, and the form and strength of the galvanic current, must be determined by the character and severity of the disease, and the age, sex, and constitution of the patient.

As, however, it is possible to do oneself a good deal of harm by the electric bath — in cases where the symptoms are against it, or where the bath lasts too long, or the galvanic current is too strong — one must be very careful and on one's guard against the so-called "electro-therapeutists," who put on learned and scientific airs. Although these people have only a very superficial knowledge of electric treatment, they do not hesitate to cry electricity about the world as a universal panacea — solely for the sake of trying the electric effect, on themselves, of a little hard cash. This must be noted very particularly, because there is a very prevalent

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he was conducting a "scientific" experiment, in this production of "static" electricity, which has an attractive power?)

The action of what are called electric or galvanic batteries depends entirely on static electricity. The apparatus usually consists of a fixed varnished glass disc, provided with a metal border, in front of which a similar but smaller disc is turned, having a common centre with the larger one. The static electricity that is generated by their reciprocal action is absorbed by a sort of comb or brush arrangement, and led to two conductors, where it is accumulated; from these it is conveyed to the patient, who sits before or under the conductors.

belief that all you want for electrical treatment is an apparatus, whereas scarcely any treatment demands so much acquaintance with physics, physiology, and anatomy as electro-therapeutics.

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### III.

## Enemas and Injections, and their Use.

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### 1. Injections.

The commonest forms of injections are into the rectum, and are generally called "enemas." The enema or injecting syringe — a rather large, irregular-shaped instrument — has long been a characteristic of the "doctor" and of the "mid-wife." At all events we find both of them frequently depicted with the enema under their arms, in old illustrations. This is not the place for making a few "useful" observations on the question whether they were so often depicted with the injecting syringe precisely because, as a rule, they rarely or never used it in practice, preferring the action of purgatives, such as rhubarb, castor oil, alder bark, senna leaves, magnesia water, etc.; we have to deal here with the enema as an essential element in the Natural Curative Treatment, or the water treatment.

An injection may take place not only into the rectum, but any other natural opening of the body — the nose, ears, vagina, or urethra — for the alleviation and cure of acute or chronic inflammation of the free mucous membranes, to strengthen them and increase their function, and for the expulsion of deposits of waste matter, mucous accumulations, etc.

### 2. Enemas in the Rectum.

Enemas in the rectum are of immense service in cases of costiveness, diarrhœa, debility of the bowels, pressure of blood in the head, hemorrhoids, etc., in dysentery, and even cholera.

To cure costiveness (see this in Index), we have, first of all, to loosen and repel the obstinate fæces. This matter is mostly lodged in the colon, the portion of the intestines



that comes next to the rectum. In order to loosen and repel this hardened matter, injections of lukewarm water are very useful, in conjunction with massage of the abdomen, hip baths, the Kneipp under-douche, stimulating body bandages, etc.

As a rule, the water used for the injection should be about 74° to 86° F. If it were taken any colder it would prove too violent a stimulus, and would not dislodge the hard fæces. The quantity of water to inject should be about a half to two-thirds of a pint for adults, and half that for children — say one, one-and-a-half to two wine-glasses full.

There are various kinds of apparatus for giving the injection. The once common injecting syringe, with a bone nozzle, has fortunately almost disappeared. It caused a good deal of mischief, especially to little children, in the hands of unskilful operators. Instead of it, the "Clyso pump" (Fig. 103) and the "Irrigator" (Fig. 104) are now used, and I will briefly explain their application.

To apply the clyso pump properly, first fill a suitably flat vessel (wash basin or tin dish) with water at the requisite temperature and in the proper quantity; fix the Clyso pump in it, after squeezing\* the air out of it with a few turns; slightly oil the mouthpiece of the apparatus, and then put the basin, with the instrument, on a chair near the bed, on which one may lie to have the enema. Then, lying on one's breast or half to one side, insert the mouthpiece carefully in the rectum, hold the tube firmly with one hand — which is easiest when lying on the back — and with the other hand pump the water in steadily. When you have finished, lie on the left side,\*\* and remain in that position as long as you can, so as to give the injected water as much time as possible to exercise its loosening property in the colon. Then — well, I need not go into explanations as to the rest of the "delicate" process.

The irrigator is similarly filled with water of the

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\* The expulsion of the air from an injecting apparatus before it is used must never be omitted, because when air is let into the bowels it causes an intolerable strain. The mouthpiece must not be inserted into the rectum until the water is seen at its orifice.

\*\* Children should be laid on their side during an injection. If they attempt to press the water out, do not promise them a "present" to keep still, but keep their anus closed for a few minutes with your thumb. Then — let things take their course.

temperature and in the quantity already described. Then the well-oiled mouthpiece is inserted, the patient lying on his side or (when the vessel is high) on his back, and the irrigator is lifted up to a height of three to four feet, or hung on the wall. The water then runs, with more or less pressure — according to the height of the apparatus — into

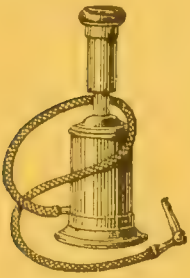


Fig. 103.  
A Clyso Pump.

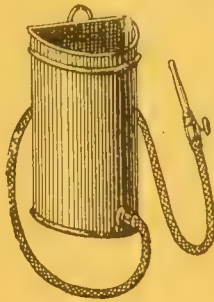


Fig. 104.  
An Irrigator.



Fig. 105.  
An Indiarubber Enema.



Fig. 106.  
The "Alpha" Enema.

the rectum. For the rest, the same rules apply in the use of the irrigator as in the use of the clyso pump.

An instrument that is very practical for self-applications is the "Indiarubber enema." (Fig. 105). It is an enema with an elastic tube and an indiarubber ball in the centre, by pressing which the water is at once drawn into the instrument on one side and injected into the bowel on the other.

An improved form of the enema is found in what is called the "Alpha" enema" (Fig. 106), which causes a continuous current, and so entirely prevents the dangerous entrance of air.

For use in the case of children it is well to have a smaller "ball syringe" (Fig. 107), out of which the air is squeezed, and then it is held in water of the necessary temperature and quantity until it is absorbed. It must be noted that the mouthpiece of all the instruments we have described must be well oiled before use. Olive oil is the best for the purpose.

After the effect has been produced, the patient is given a lesser enema, cold. For adults it should consist of about one to two wine-glasses of water; for children half that quantity is sufficient. The temperature of the water should, as a rule, be from 66° to 73° F.



Fig. 107. An  
indiarubber  
"Ball Syringe"  
Enema for  
young  
children.

This second or staying enema must, as its name indicates, remain and be absorbed by the bowel, it must not be expelled again. In cases of obstinate constipation, a "staying" enema may be taken at night before going to bed, without being preceded by a loosening enema, and the larger, warmer, loosening enema may be taken the following morning.

The thermal stimulus of the water acts on the mucous lining of the bowel in the same way as on the epidermis. It promotes the flow of blood in that part of the mucous lining of the intestinal canal, hence the "staying" enema supports the application of water to the outer skin, which is usually given at the same time. In case of fever it co-operates beneficially, attracting the blood from the head and the vital organs of the chest and the upper part of the abdomen, which are morbidly overcharged with it, to the lowest part of the bowels. Hence it can only do good, in all cases of acute heating illness, to give one or two "staying" enemas independently of the loosening enemas — say, one in the morning and one in the evening.

In case the loosening enema (73° to 86° F.) does not have the desired effect, a second one of the same kind, but less in quantity, may be given after a lapse of half, three-quarters, or one hour. Sometimes it may be necessary to give ten to fifteen enemas, with suitable intervals, before there is any result — and it is then usually a very successful one.

If the cause of the constipation lies in the cæcum, into which of course the injection cannot penetrate, we must "eat the sour apple," we must seek the help of an aperient of a vegetable character — (according to Kneipp, as much aloes as rests on the point of a knife, or a cup of infusion of the goose-foot plant, in two portions, but no patent pills or anything of that kind). On no account must the patient omit to apply an enema of 73° to 77° F., after taking a drastic aperient, in order to wash out the bowel and to prevent inflammation.

As I have already said, a stimulating body bandage supports the action of the enema, but it is well to apply vapour wrappers and bed vapour baths (see these in the Index), also for the purpose of regulating the action of the bowels.

In cases of hemorrhoids, the loosening enema should not be taken too cold, so as to avoid still further irritation of the inflamed mucous membrane. Water at a temperature

of  $88^{\circ}$  to  $93^{\circ}$  F. is the best. Cold staying enemas are entirely out of place in such cases.

In cases of cholera and dysentery the water should be as cold as possible ( $50^{\circ}$  to  $61^{\circ}$  F.). There should not be a moment's hesitation in setting about the heroic application of cold, inside and out, in order to save the patient, already given up, perhaps, and to provoke a reaction. The result which is obtained in cases of diarrhœa by the application of a loosening enema, in conjunction with a subsequent small cold enema, is brought about by the attenuation and repulsion of the fermenting and irritating matter that has accumulated in the intestinal canal, and by the relief and cure of the inflammation of the mucous membrane. If pain is felt after an evacuation, in a case of diarrhœa, a lukewarm enema should always be administered before the cold or cool-retained enema.

### 3. Injection in the Vagina, or Vaginal Enema.

An injection into the female vagina has, like the injection into the rectum, either a cleansing, loosening, soothing, moderating, anti-inflammatory effect, or a refreshing, strengthening, blood-attracting effect on the vagina itself, and on the adjacent sexual organs. One could almost compare the action of the injection, varying according to the temperature of the water and the cases where it is useful, with the action and the indication of the cold and the soothing hip bath (p. 521 et seq.), if it were not for the fact

that in the female vagina we have to deal with an extremely

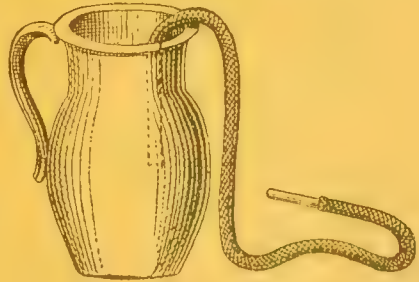


Fig. 108. The simplest Injecting Apparatus.

sensitive and difficult organ, so that a most careful determination of the temperature of the water is required for every injection. It is best for the patients to be guided by their feelings, and rather have the water too warm than too cold, to begin with. A temperature of  $88^{\circ}$  to  $90^{\circ}$  F. ought to be the most suitable at first. It can then be gradually lowered to  $81^{\circ}$  to  $77^{\circ}$  F., or even lower, according to the individual temperament and the nature of the disease. Only one must always bear in mind the general principles of the system of water cure — whether



it is sought to increase or to reduce (against inflammation) the flow of blood to the diseased organ.

The injections which are administered for the most varied forms of female complaints (leucorrhœa (whites), catarrhal condition or inflammation of the womb, abscesses, prolapse, etc., inflammation of the ovary, etc.), are very much modified according to the seat, the extent, and the intensity of the mischief. If, for instance, one has to deal with an abscess or catarrh, as a rule, water at a high temperature ( $83^{\circ}$  to  $86^{\circ}$  F.), must be used for the injection. A wrong position, or a prolapse of the womb, both of which are caused by the weakness of its ligaments, demands the use of cold water

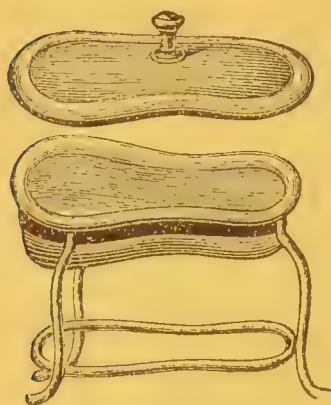


Fig. 109.  
Raised Bath (Bidet).

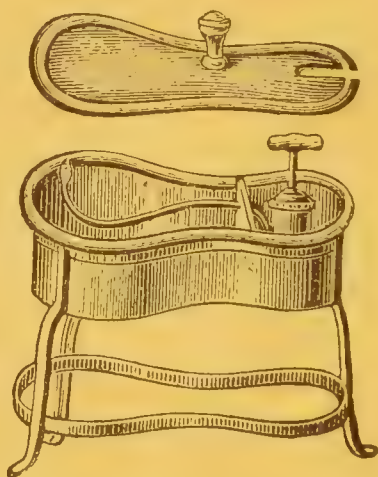


Fig. 110.  
Bidet with Clyso Pump.

( $70^{\circ}$  to  $77^{\circ}$  F.), because you need to increase the supply of blood to the organs, in order to strengthen them by giving them more nourishment. But if there is also an inflamed condition of it, or of neighbouring organs, to take into account, the water must be of a higher temperature, and cold water must be entirely forbidden.

But a woman is rarely able to decide properly as to her condition, and so I must urge extreme care with regard to the taking of injections. It is much better to use hip or body baths, or massage hip baths, or to apply a stimulating, or especially a soothing cross bandage, and only to take a mild ( $88^{\circ}$  to  $92^{\circ}$  F.) injection after the monthly discharge, to clean the vagina and the mouth of the womb. During the menstrual flow all injections are strictly forbidden.

The simplest apparatus for injecting is the one shown in Fig. 108. \* An ordinary vessel, about a pint of water, an indiarubber tube (about one to two yards long) and a mouth-piece (vaginal) are all that is needed. But the mouthpiece is not a short bony tube with a single opening, like the instrument for injecting in the rectum. It consists of a long thin tube of vulcanized rubber, made after the shape of the vagina, called a "vaginal tube," which has a rounded head, with a number of little openings in it, like the rose of a watering can.

The patient now puts the tube into the vessel of water, so that the end of the tube with the vaginal attachment hangs out of the vessel, places the vessel on a chair, and sits down on a pail or footstool, placing another vessel on the ground in front of the stool, for the purpose of receiving the water as it flows out of the vagina. She then draws the air out of the rubber-tube with her mouth, and inserts the vaginal tube carefully in the vagina as the water it has absorbed appears at its opening.

The use of the Clyso pump (Fig. 103), or the irrigator (Fig. 104) is much more convenient and handy, and a vaginal tube must also be fitted to them. The patient seats herself on a chair or a footstool, or lies on the bed to take the injection, taking care always to place a vessel to catch the water from the vagina, so as not to let it go on the bed or on the floor.

It is best to take the injection on a raised bath, called a "Bidet" (Fig. 109), and to use the irrigator, which is hung about a yard high on the wall, at the same time. For the rest, the Bidet, with the Clyso pump fitted in it, and a separate vessel of water (Fig. 110), is much to be recommended.

#### 4. Injection in the Ear.

Injections with lukewarm water (90° to 95° F.) are very good for cleaning the ear in cases of discharge, suppuration, catarrh of the internal ear, and for softening hardened wax, etc. However, the stream of water must be turned so as not to fall directly



Fig. 111. A Glass Syringe for injecting in the Ear and the Urethra.

\* The indiarubber tube on Fig. 108 is provided with a mouthpiece for injection in the rectum.



Fig. 112. An indiarubber Syringe with a soft nozzle, for the Ear.

on the tympanum, or drum of the ear, it must be directed towards the side. This requires care and prudence. The syringing is repeated several times, until the water is clear when it comes out of the ear. The ear is then dried, preferably with wadding. Figs. 111 and 112 show different kinds of syringes. The syringe shown on Fig. 111 is of glass, and is also used for injecting in the urethra, for which purpose about a quarter-of-a-pint of water, at a temperature of  $90^{\circ}$  to  $93^{\circ}$  F., is used. For dealing with the ear alone, the syringe on Fig. 112 is most suitable, because it has a soft neck.

## 5. Injection in the Nose.

Injections in the nose are taken with water at a temperature of  $90^{\circ}$  to  $94^{\circ}$  F. They may be administered either with a nose syringe (Fig. 113), or with an irrigator (Fig. 104) (nose douche.) There is also a kind of nasal bath taken by



Fig. 113. Indiarubber Syringe, with a soft neck for the Nose.

drawing the water up the nose from a basin. Children should be made to draw up the water into the nose out of a clean sponge. For the nose douche, the douche apparatus shown on Fig. 108 may also be used, only the vessel must not be placed too high — which also applies to the irrigator when it is used for the nose — about twenty inches is high enough. During an injection given with an instrument, the water usually, in the case of a “normal” nose, flows out by the other nostril, as the mouthpiece of the syringe is, of course, inserted in one nostril. Water may also be taken into the mouth, the

head thrown well back, the mouth closed, and then the water sent through the nose by jerking the head forward.

Injections in the nose are good for headache, pressure on the forehead, vertigo, giddiness, insomnia due to catarrh of the nasal and frontal cavity, scrofulous nasal catarrh with a foul purulent discharge, etc.; and in general they are useful in all acute and chronic diseases where it is advisable to relieve the pressure on the brain.

When the nose is blocked, owing to an inflamed condition, injections must not be taken, but the water must be drawn up from a vessel. Only the nose should be dipped in the water in such cases, and head vapour baths should be taken (see these in the Index). The vapour baths loosen the tough mucus which stops up the way of the air and water.

The best way to finish the nasal treatment is to gargle the mouth with water at a temperature of 68° to 74° F. In cases of croup, diphtheria, inflammation of the jaws, etc., it is useful to take injections in the mouth with water (66° to 74° F.), to which it is well to add a little pure, fresh lemon juice.

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## IV.

### Vapour and Hot Air Baths and their Application.

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#### 1. General Remarks.

If we take a glance at the history of balneo-therapeutics, we find that vapour baths were regarded in the earliest times as the best means of cleansing, as a rejuvenating, bracing, wholesome treatment, an important preventative of disease of every kind.

Even in the year 340 B.C., the vapour bath came into use for healing purposes under the Greek physician Chrysippus, who used to put his patients in a vessel filled with steam for the cure of dropsy, he is therefore rightly named as the inventor of the "box vapour bath," if not of the larger "patent" one. The vapour bath was much esteemed by the Lacedemonians, and there were public vapour baths in the time of Alexander the Great, which were open to the poorer classes without charge. "In balneis salus," said an ancient Roman proverb — "there is health in the bath;" hence a Roman writer could well say that, "for six centuries Rome with its baths needed no physician." The colossal baths built by the Roman emperors are beyond all comparison with any modern institution of this kind, Turkish, or any other baths.



We need not stop to inquire here how important cleanliness of the skin is for a man's health. The skin is a protective, sensitive, and secretory organ. In the latter regard it has two functions — excretion and absorption. By means of the exhalation from the skin, and perspiration, we get rid of waste matter from the system; we discharge carbonic acid and take in oxygen in its place. It is impossible for the skin to fulfil these functions if its cleanliness is neglected. The waste matter settles in the system (see p. 206 et seq.), and causes a morbid condition, enervation. The proportion of water in the blood increases, which means a greater poverty of the blood, and the vigour of every part of the organism is reduced, as these receive less nourishment and more water, though the watery element is not so conspicuous as the fatty element in the body and its members. (See also the Chapter "Hardening, and Enervation," Part I.).

A vapour bath is the best means of ridding the system of its excess of serum (watery blood), and of restoring the tone of the nerves and muscles, and every man who wants to keep in the best working form should take one or two every week. There are no healthy people nowadays. We are all, without exception, more or less loaded with morbid matter, our skin is always more or less neglected, we all suffer more or less from excess of water in our blood and tissues, hence it is imperatively necessary to use some kind of treatment to protect us against disease, and to free us from any disposition to contract contagious or infectious maladies.

The skin is softened by the action of steam, the cast cells of the epidermis are removed by a suitable massage accompanying the bath, the blood is drawn to the surface of the body, and, with the outbreak of perspiration, a quantity of morbid matter is discharged through the skin.

In its treatment of the sick, the water method of curing applies moist heat, which is of so much importance to the system, in the form of steam, not only for the purpose of stimulating the secretory activity of the organism, but also for the purpose of warming it, or some special part of it.

When the body, or any part of it, has been warmed, a better circulation of the blood in the skin has been promoted at the same time, though the most important element in the warming of the system and the increase of the circu-

lation by means of cold water — that is, the reaction, and the healing force that depends on it — are wanting in this case. Hence a vapour bath, either whole or partial, can only serve the purpose of preparing the system for a subsequent cold, stimulating treatment which will set up a reaction; apart, of course, from cases where the stimulating treatment has to be wholly or partly omitted on account of the low condition of the patient's force of reaction, or where the warm treatment is only given for the purpose of allaying and soothing. We shall have more to say about this in the following Chapter.

## 2. The Russian Vapour Bath.

The vapour bath is so common in Russia, that one finds them even in the smallest villages. At the beginning of the present century the "Russian vapour bath" was introduced into the rest of Europe.

The Russian bath, as it is found outside the Tsar's dominions, is an establishment in which there is a room filled with steam,\* and other rooms fitted with different kinds of baths, for dressing and undressing, and for resting after the bath. The steam has a temperature of  $108^{\circ}$  to  $122^{\circ}$  F. For lying or sitting in the hot room, wooden (often marble) benches are fitted up horizontally against the wall at different heights. According to familiar physical laws, the air is warmer at the ceiling of a room than at the floor, and hence the steam in the bathing room has an increasing temperature as you ascend towards the ceiling. Thus the bather is able to modify the vapour bath himself by choosing a position on benches at different heights.

As a rule people remain about ten to fifteen minutes in the steam, and then take a moderately cold douche,\*\* which is

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\* In Russia the steam is generated by pouring water on red-hot stones, which are laid on an iron grate. The stones are kept red-hot by a fire underneath. In other European countries the steam for the Russian bath is generated in boilers, and conducted by pipes into the bathing room.

\*\* The Russian villager cools himself in the neighbouring stream or pond, into which he jumps, and hastens back to the steam when he is cooled. In winter the snow takes the place of water. He dances about in it until he gets cool, and then immediately exposes himself to the steam again ( $112^{\circ}$  to  $122^{\circ}$  F.) The reaction thus produced is certainly very strong, but I should not care to recommend this proceeding to everybody — a satisfactory reaction can be set up without going to such extremes.

given either within or without the vapour room. After this douche you get into the steam and sweat again, have another douche, until you feel, after two or three turns, that you have had "enough." When the bath is finished, it is absolutely necessary to undergo a cooling treatment outside of the hot room. It generally consists of a rather cold full bath, or a douche, which is lukewarm at first, but is gradually reduced to cold by slowly turning off the "hot" tap. During the heating of the body in the steam an attendant walks about, and beats the whole of the front and back of the body with fresh birch twigs, which causes a most peculiar sensation — about half-way between pleasant and unpleasant. In most bathing establishments the bather is also cleaned with a brush, either in the hot room itself, or after he has cooled down a little outside, and he may then either continue his vapour bath or leave off. Sometimes also massage (kneading, pounding, hacking, stroking, rubbing, etc.) of the whole body is added to the brushing. In a word, there are a great number of modifications of the Russian bath, all of which it is not necessary for the reader to know, as the Russian bath occupies a very subordinate position amongst the applications of the water treatment. There are other forms in which the head is kept out of the steam, and the patient has not to breathe the effluvia from his fellow bathers, and these are to be preferred.

The bather is dried when he has finished, and then he generally lies on a kind of sofa (the lectulus of the ancient Romans), in a special cabinet in the dressing-room, wrapped in a sort of sheet, to rest; or, if the bath is for curative purposes, he may have a dry wrapper put on — though this is not a part of the original Russian bath, but an addition to it on the part of "medical science."

After resting, the bather puts on his clothes and leaves the establishment, for the purpose of taking a walk in the fresh air, which is very much to be recommended at such a time. On no account should he make for a public-house, as civilized man is, unfortunately, very likely to do. In that case the deposit of foreign matter in the system, which has been reduced by the bath, will at once receive an addition of new pathological material, from the beer, and the innumerable bacteria of the public-house atmosphere.

I shall treat more fully in one of the following Chapters of the physiological effect of steam, and therefore of the Russian bath, on the human organism.

### 3. The Roman-Irish Bath.

The "Roman-Irish" baths — so called because the ancient Romans liked this kind of bath, and, after it had been forgotten for many centuries, was again introduced in Ireland by Dr. Richard Baxter about twenty five years ago, and more or less rehabilitated — have been applied in all the chief European towns for many years. The Greeks, Arabs, and Turks had almost the same kind of bath. A few non-essential modifications are found, according to various degrees of effeminacy and luxury and national customs.

The arrangement of the Roman-Irish bath, as we now find it in the larger towns, is as follows:

From a waiting-room — which is used both by those who are taking the Roman-Irish and those who are taking the Russian bath, because the two baths are taken in neighbouring rooms on account of their common use of the douche and cooling room — you pass into a more or less tastefully and comfortably furnished room, fitted up with couches, called the "frigidarium," or cold-room, in which the temperature is generally about 74° to 77° F. Here you undress, put on a bathing shirt, and sandals with thick wooden soles, take one or two towels, and pass into the first hot room, or tepidarium, where the temperature is about 104° to 113° F. Here you wait on straw or on wooden benches, reading or talking to the other bathers, until perspiration breaks out. This may take half-an-hour, or even longer, according to the individual temperament. If it is too long coming about, you let the attendant rub you with flesh-gloves or a rough towel. When the perspiration has continued for about a quarter or half-an-hour — so that one generally remains about an hour in this room — you pass into another room, called the sudatorium (sweating-room), which has a temperature of about 122° to 145° F. Here you perspire for another five to ten minutes, and then hurry into the lavacrum, the room that contains the baths and various kinds of douches. This is generally at a temperature of 82° to 89° F. In the lavacrum, as a rule, you take off the shirt and sandals, and have a lukewarm (96° to 100° F.) douche; then you lie on a wooden bench, and are cleaned and massaged. The chief part of the massage is a skilful kneading. All the muscles and the internal organs, as far as possible, must be pressed, pushed, stimulated, and put in motion; all



the joints must be repeatedly bent and stretched. When this is done you take a douche, which begins with lukewarm water, but is gradually lowered, and then you have a cold (68° to 77° F.) full bath for a few moments. After that you dry yourself, put on a long bathing cloak, straw slippers, and a linen turban, and then go back into the frigidarium, where you wait in this light clothing until you get cool.

Naturally the use of the Roman-Irish bath, like that of the Russian vapour bath, is subject to many modifications, according to individual temperament. But it would take too long to enter into them all here.

With regard to the physiological effect of these baths, everyone who has ever taken a Roman-Irish bath, for the sake of his health or out of curiosity, speaks highly of the pleasant and light feeling that follows. The Roman-Irish is neither a water nor a vapour bath, but a "hot air bath." The skin is heated by the high temperature of the dry air, its blood vessels expand, the circulation is promoted in the skin, and this leads to an increased activity of the sweat glands all over the surface of the body. The sweat that forms on the skin evaporates more quickly in the dry air than in the vapour bath, where the removal of the emanation from the skin is less rapid, and so new sweat is continually pouring out. Thus the Roman-Irish bath causes a good deal of fluid to be discharged from the body.

Although we have now what are called pneumatic single sweating baths, in taking which the head is kept outside the hot, dry air, yet I am no opponent of the Roman-Irish bath in cases where these cannot be obtained, but I recommend it — with, of course, a due observance of the necessary precautions — to those patients who wish to reduce the proportion of water in their blood and tissues for hardening purposes. Where it is sought to break up and get rid of dropsical accumulations in the skin, or in the pectoral or abdominal cavity, the Roman-Irish bath will be found very useful, as also in cases of chronic skin disease, colds, rheumatic affections of the muscles and joints, gout, digestive ailments depending on disorders of the portal circulation, expansion of the liver, hemorrhoids, costiveness, morbid obesity, etc.

The bath must not be taken in cases of degeneration and decay of vital organs, diseases of the brain and spinal cord, tendency to apoplexy, advanced tuberculosis, maladies of the heart and blood vessels, etc.

#### 4. The Box Vapour Bath.

The box vapour bath (full vapour bath)\* (Fig. 114) is a single Russian bath, and has the great advantage of leaving the head outside the steam. The patient sits naked in the vapour box or cabinet, on a cane-bottomed chair. The feet rest on a stool with plenty of holes bored in it, on which it is best to put a folded towel. Sometimes also a thermometer is put in the cabinet, in a small opening immediately in front of the patient, by which he can tell the temperature within during the progress of the bath. The steam is generated in boilers at bathing institutions, but in private houses it is obtained from a kettle placed on an oil or gas stove, with a funnel-shaped lid, to which an indiarubber tube may be attached. Apparatus that is specially constructed for these baths, with indiarubber tubes (as on Fig. 118), is certainly preferable. There is a cock fitted to them, and by turning it on or off one can regulate the supply of steam at will. The rubber pipe conducts the steam from the apparatus

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\* The "full vapour bath" of Kneipp is the same thing. The worthy pastor does not think much of vapour baths, as I have already said on p. 304.

"This general vapour bath," he writes in his "Will," "may be administered in cases of chronic gout and lichen, if the patient is not too thin. It is also good for reducing fat, and in cases of severe blood engorgement.

"If, however, anyone were inclined to go in for taking the full vapour bath frequently, because the great perspiration caused in the cabinet is very relieving, I must seriously warn him against doing so, because too frequent an application of it would cause an excessive distension of the blood vessels of the skin. Moreover, as heat always enervates, taking a vapour bath too frequently will only increase the enervation. After all the experience I have had from frequent applications of it, I am inclined to allow such vapour baths only once, or, at most, twice a week, and cold applications on the other days.

"This box vapour bath is the simplest form of the Russian bath, in which people perspire and then dip into water.

"Corpulent people will be inclined to think that this full vapour bath must be very good for them, causing them to perspire so much. But I must remark that corpulent people are already soft and enervated, and that the vapour bath will only make them worse in this respect. I am convinced that such people derive much greater benefit from full douches, shower baths and lightning jets, in reducing their weight and making their systems stronger and capable of more resistance. However, a vapour bath may very well be recommended as a change from the cold treatment.

"And how beneficially we can act in this way on the entire system or any of its members! How economically we can set to work by merely causing perspiration in individual members when the system, as a whole, has no need for it!"

into the cabinet, admitting it through a finely perforated board, about two to four inches above the bottom of the box, and of about the same width and length.

The cabinet vapour bath is generally taken at a temperature of about  $106^{\circ}$  to  $112^{\circ}$  F. The patient is left in it until beads of sweat appear on his forehead; then he is immediately



Fig. 114. The Box Vapour Bath.

given a full-length stimulating bandage, which, of course, should be ready to put on. In this case the water in which the wet cloth of the bandage is dipped may have a temperature of  $64^{\circ}$  to  $68^{\circ}$  F., as cold is not only less unpleasant when the skin is heated and perspiring, but because experience has shown a lower temperature to have a much more

beneficial and thorough effect in such cases.

The patient may also, as in the case of the Russian vapour bath, return to the vapour cabinet after a short cool or temperate douche, perspire again, and then have a full bath at a temperature of  $86^{\circ}$  to  $92^{\circ}$  F., or a half-bath at  $83^{\circ}$  to  $90^{\circ}$  F., or a body bath at  $74^{\circ}$  to  $77^{\circ}$  F., a slapping with the hands or a wash all over, etc., according to temperament and the effect desired.

People must, however, be on their guard against excess with regard to the duration and temperature of the vapour bath, or else it will do more harm than good. In cases of chronic illness, it is easy to repeat the process if you have given too little; but if you have done too much, you have to pay for it with a loss of vital and healing force.

A good proceeding is to put a cooling head bandage on the patient whilst he is perspiring, and renew it when it gets warm. Also wipe his face and neck from time to time with a cold damp cloth. In any case the neck should be covered with a linen or woollen cloth, so as to prevent the escape of the steam. Any parts of the system that are out of order should be treated with local or extra bandages during the vapour bath. If the bather feels thirsty, give him a glass of water to drink.

The cabinet vapour bath is also replaced in domestic use by other applications of steam, which will be described in the following Chapters. As to its effect and the indications for it, see under "Important General Observations on Vapour Baths." I will only remark that one or more windows should always be open during a vapour bath. At the beginning of the process, during undressing, and at the end as well as during the subsequent cooling treatment, the windows must be closed again. This applies particularly to the summer. During the winter the window may be opened a little at the top.

## 5. The Cane Chair Vapour Bath.

The application of a "cane chair vapour bath" requires: One, three, or four cane-bottomed chairs, or a cane-seated bench; one to three pails of boiling water, or, better still, the apparatus which has been specially constructed for this purpose (Fig. 115), in which the water is kept boiling continually by a spirit-lamp, and the action of the steam can be regulated by means of a brass triangle or a wooden cross-piece; then one or two woollen blankets, and a full, half, or body bath, or a massage bath.

### The Vapour Bath with one Cane Chair and one Steam Pot.

In taking this bath (Fig. 116) the patient sits quite naked on a cane-bottomed chair, under which there is a steam pot



(Fig. 115), or a pail or other vessel of boiling water. Patient, chair and pot are wrapped completely in one or two woollen blankets. The blanket is fastened with safety-pins at the neck and feet; the head is free. The feet either rest on a



Fig. 115. A Steam Pot.

couple of small, but strong and firm strips of wood, which lie on a pail half-full of boiling water (Fig. 127), or else in a hot foot bath. In order to keep the water steaming, when it is in an ordinary bucket or pail, you put in a hot brick from time to time, or a few hot, though not quite red-hot, steel bolts, carefully drawing the blanket aside, or the cooled water may be replaced by fresh boiling water from the stove which you have at hand.

The bath lasts from fifteen to thirty minutes,

according to individual needs and the effect desired. It is followed by a cooling treatment, as given under "Box Vapour Bath." With regard to the effect and the indications for the cane chair vapour bath, see under "Important General Observations on Vapour Baths."

### The Vapour Bath with three or four Cane Chairs and three Steam Pots.

In the bath on three chairs, the patient sits on one cane-bottomed chair, and his legs are supported on two others side by side. Under each chair there is a steam pot, or a bucket or other vessel of boiling water. Patient, chairs and pots are well wrapped up in one or two woollen blankets. The blankets must reach well down to the feet on every side, and so as to make the neck thoroughly air-tight.

In taking the "vapour bath on four chairs," the patient lies full length on four cane chairs put side by side. His head rests on a small horsehair pillow. There is no steam pot under the chair which supports the head, but one under each of the other three chairs. The patient must be well

wrapped up in blankets, which must close in well on every side down to the ground, and must especially keep out the air at the neck. The blankets, therefore, must be of a good length and width, because the backs of the chairs are to be covered also.

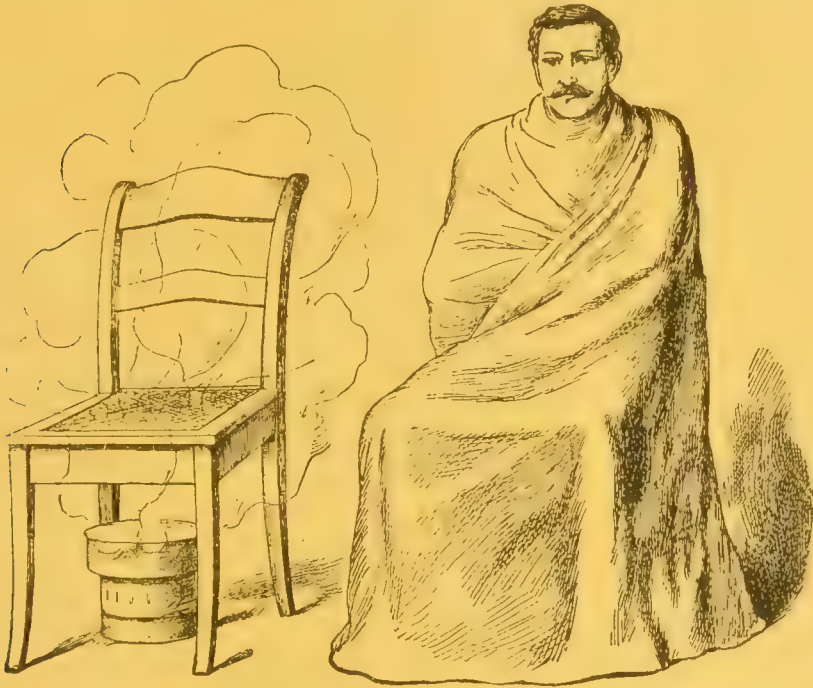


Fig. 116. The simplest Cane Chair Vapour Bath.

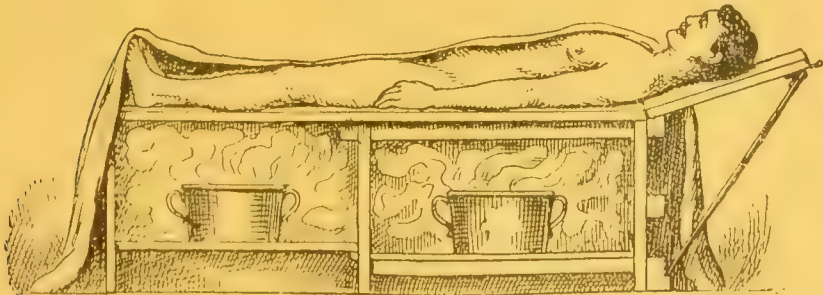


Fig. 117. The Kuhne Cane Chair Vapour Bath apparatus, in several parts.

It is best, in giving a bath on three or four chairs, to lay the patient down first, and wrap him up carefully, and then put the steam pots under the chairs, lifting the blankets up a little at one side. If the patient is very sensitive, a thin blanket is first placed on the chairs. The vessels should

only be half, or, at the most, three-parts full of hot water, so that the steam may not scald on account of the water being so close. During the bath the patient should have a little cold water to drink from time to time, his head should be cooled with bandages, or a thick wet towel should be wound round it in the form of a turban. For the rest, the directions as to the cooling treatment, and the indication for and effect of these baths, will be found under "Important General Observations on Vapour Baths," in a later chapter.

### The Cane Chair Vapour Bath, according to Kuhne.

This bath is taken on a special apparatus, as shown in Fig. 117.\* When the patient has lain down on the cane-seated bench, and been well covered up with a large woollen blanket — paying particular attention to the tucking in at the neck — two or three steam pots are placed on the foot-board of the apparatus. The action of the steam is regulated by sliding more or less to one side the lids of the pots, which lie on a triangle of thick brass wire, or cross-pieces of wood about one-third of an inch thick, and thus letting a greater or less quantity of steam out. One pot should be placed under the feet, another under the middle, and the third under the back of the patient. In the case of children, only one or two pots should be used. After ten or fifteen minutes the patient, who has been lying on his back, turns on his breast, so that it and the abdomen may "get their share." (In the preceding baths on three or four chairs the patient must also be turned.) It is well also to let the attendant draw the blanket over the head, whilst lying on the breast, so that it may share in the perspiration. Respiration will not be interfered with, as the head, and especially the face, lies on a cane-seated part of the apparatus. The bath may then continue for another quarter or half-an-hour, as may be desired." Parts of the system which are particularly laden with fermenting matter do not easily perspire, and the patient himself desires greater heat in these parts. This desire should always be attended

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\* These vapour baths have several great advantages over others. An even distribution and normal circulation of the blood are secured by the horizontal position of the body, the supply of blood to the skin, and the formation of perspiration at the extremities (hands and feet) are increased, and, as a consequence, the head is protected from congestion.

to, as it is just in this way that the vapour bath does so much good." (Kühne.)

Vapour baths of this kind should only be taken once or twice a week. "More than two vapour baths per week," says Kühne, "should only be taken under the advice of an expert."

The vapour bath is followed by a cooling body bath. For the rest, see under "Important General Observations on Vapour Baths," as to the effect and the indications for the cane-chair bath.

## 6. The Bed Vapour Bath, according to Rikli.

This bath, as its name indicates, is taken in bed, in the following manner:

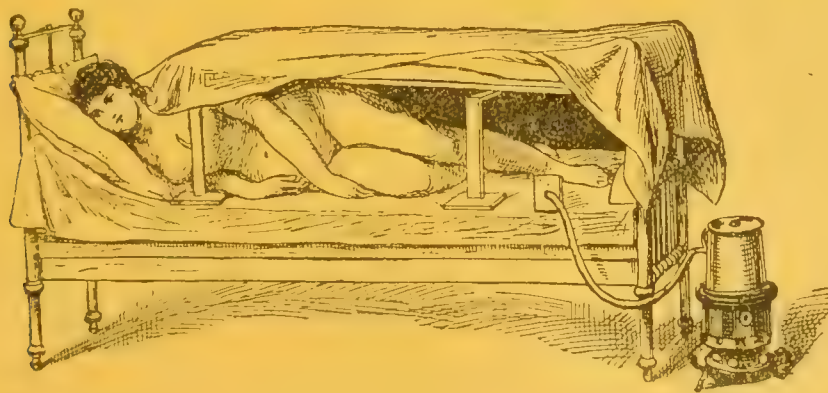


Fig. 118. The Bed Vapour Bath (No. 1), according to Rikli.

Spread a large waterproof cloth and a woollen blanket or linen sheet on the mattress of a bed, so as to prevent the perspiration from soaking it. The patient lies on this, and a kind of framework (as on Fig. 118) is fixed over him. The top of this framework consists of a lattice of thin slips of wood, with spaces of about a quarter to half-an-inch between each two. Over the lattice-work spread a large woollen blanket, letting it hang right down on every side, so that the steam may not escape. (In order to see the arrangement better, the blanket has been lifted up on the side next to the observer in Fig. 118.) Steam is then conducted into this air-tight compartment, where the bather lies, by a rubber pipe from the generator. The tube is let through the lattice-work into a large wooden box with a number of holes bored in it, so



that the steam may be evenly distributed. Care must be taken to have the blanket well tucked in at the neck of the patient. If one blanket is not enough to make the compartment thoroughly air-tight, two must be used. The framework can be adjusted so that full, three-quarter, half, body, leg, and foot vapour baths may be given on it.

This vapour bath lasts, as a rule, from half to three-quarters of an hour. If a greater effect is desired, the frame is taken away at the end of that time, and the patient is wrapped up in a woollen blanket.

The bath is followed by a cooling treatment; a wash all over (see this in Index) in the case of bedridden patients, or a full, half, or body bath for less severe sufferers. As to the effect of and the indication for this bath, see under "Important General Observations on Vapour Baths."

## 7. The Bed Vapour Bath, according to Canitz-Siebert.

This kind of bath is very frequently used in the practice of our system of Natural Treatment. It can be done even by the very poorest, as all it requires is one or two woollen blankets, a wet sheet, and three to five hot bottles with wet wrappers. This circumstance, apart from the gentle but thorough effect of the bath, is not the least part of the merit of its inventors, the two Nestors of the Natural Curative Treatment, H. Canitz and W. Siebert.

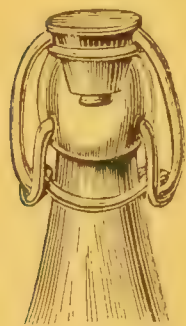


Fig. 119. The Air-tight Patent Stopper of a hot bottle.

It is taken in the following way: You first lay the wet, well wrung out sheet round the patient, just as in the case of the stimulating full-length wrapper (see this, p. 460, et seq.), and then put a warm bottle crossways under his feet, one each at the outer side of his right and left leg, at the knee, and one at each side of his body, near the lower part of the arm.

The hot bottles — those with patent stoppers (Fig. 119) are the best — are filled with hot water (135° to 145° F.). Then a towel that has been dipped in hot water and lightly wrung out is wrapped round each, covering the stopper also, and each bottle thus swathed is put into a thick woollen stocking, or well wrapped with some kind of woollen covering. At those parts of the wet wrapper where the bottles are to

lie, a piece of woollen cloth, or a folded woollen stocking, is inserted between the bottles and the wet cloth, so as to avoid the slightest risk of scalding the body.

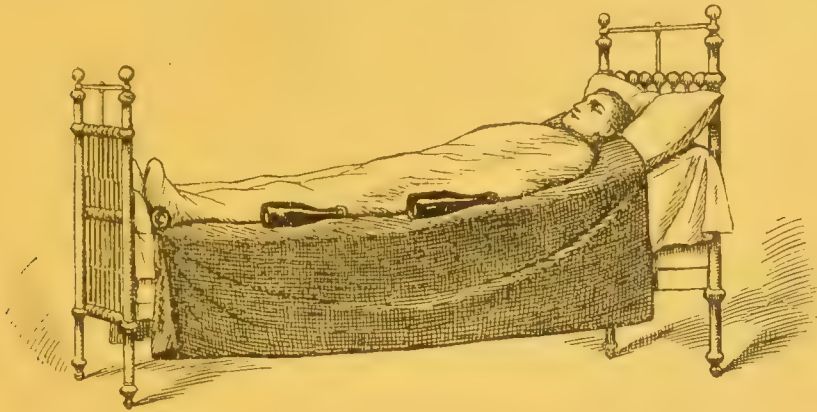


Fig. 120. The Bed Vapour Bath (No. 2). (The completed full-length wet sheet wrapper, with five hot bottles. The patient is lying on the blanket.)

The complete wet full-length wrapper, with the hot bottles applied to the body, now presents the appearance which is seen on Fig. 120.

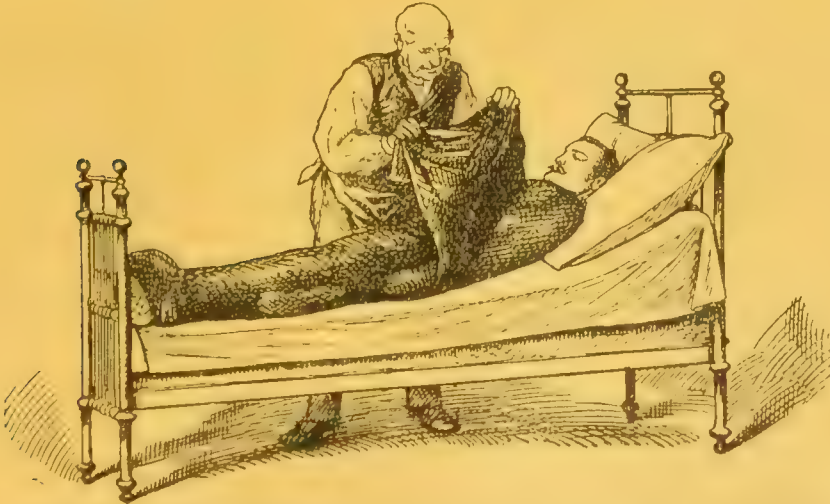


Fig. 121. The Bed Vapour Bath (No. 2). (The full-length wrapper with five hot bottles. The attendant is lifting up the blanket for the purpose of closing the wrapper by tucking it under the patient's left shoulder.)

The blanket is now folded round the patient, just as in applying the full-length wrapper, only it is not drawn as

tightly as in the latter case (Fig. 121). The completion of the arrangement is shown on Fig. 122. A down quilt is now placed on top and tucked in at the sides, and a feather pillow is inserted between the feet and the foot-end of the bedstead, and — the patient is left to his fate. Particular care must

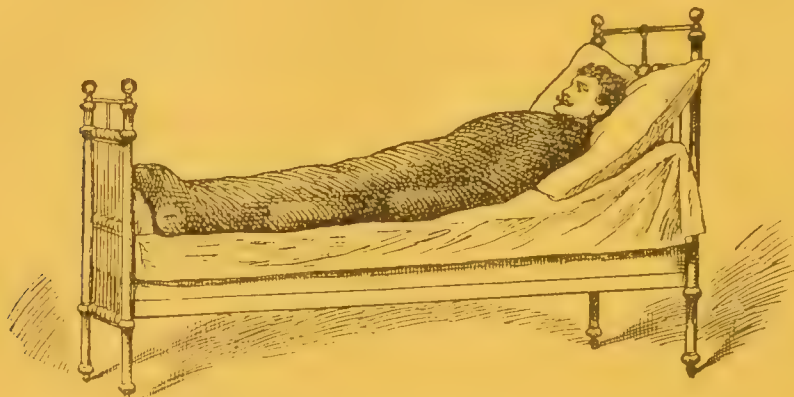


Fig. 122. The Bed Vapour Bath (No. 2). The full-length wrapper closed, with five hot bottles.

be taken to well close the wrapper at the neck, if possible by putting on an extra woollen cloth, and tucking it in well at the neck.

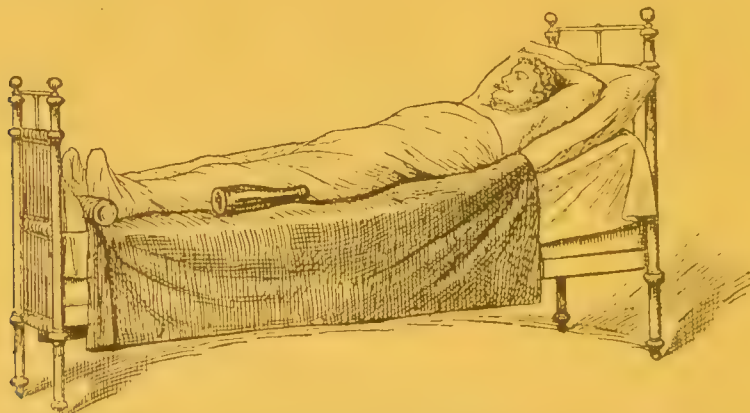


Fig. 123. The Bed Vapour Bath (No. 3). (The completed three-quarter wrapper in a wet linen sheet, with three hot bottles. The patient is lying on the woollen cover.)

Children, and excitable and weakly persons, should only have a stimulating three-quarter length wrapper with three hot bottles (Fig. 123), or a stimulating leg bandage with the same number of hot bottles (Fig. 124). The latter form of vapour bandage is also useful in cases where one wants to

relieve the head and the pectoral organs, or to produce a releasing effect on the legs themselves.

The various baths we have described may also be taken by putting the hot bottles outside the woollen coverlet, though underneath the down quilt. Or the patient may simply have a dry wrapper, and three or five hot bottles may be added to this, etc. The bed vapour wrapper, or the bed vapour bath, is subject to a great number of modifications, according to constitution, age, sex, form and severity of illness, and the amount of effect that is desired.

Bed vapour baths are so gentle and mild in their action, that they may be given to children and old people without fear.

The moist warmth that is produced by the steam of the hot

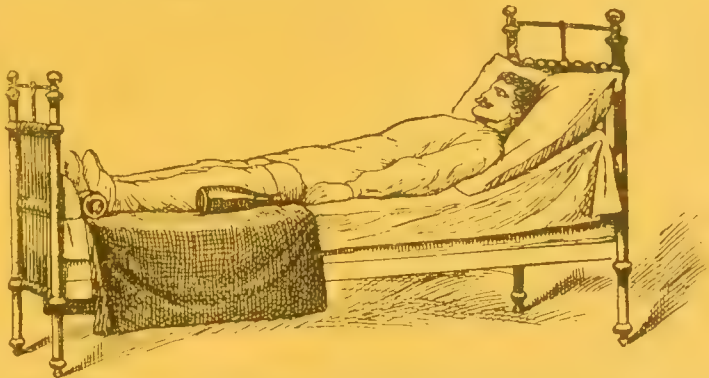


Fig. 124. The Bed Vapour Bath (No. 4). (The completed wet leg bandage, with three hot bottles. The woollen cover is not yet wrapped round the patient's legs.)

bottles and of the body softens the skin, opens its pores, and causes a healthy flow of the blood to the skin from the internal vital organs that are overloaded with blood; the peripheral terminations of the nerves are healthily stimulated, thus promoting the action of the brain and the entire nervous system, and old deposits of morbid matter are broken up and carried towards the skin in the blood, where they are given off in the form of perspiration.

As to the cooling treatment to be given after a bed vapour bath, the indication for it, etc., see under "Important General Observations on Vapour Baths."

## 8. The Hip Vapour Bath.

One advantage of the Kühne chamber or chair vapour bath apparatus is, that it can be taken to pieces, and so different parts of the system may be steamed separately.



Fig. 125 shows what is called a "hip vapour bath," which is very useful in cases of abdominal complaints of all kinds, obstructions of the menstrual discharge and the spasmodic pains they cause, all kinds of female diseases, hemorrhoids, diseases of the bladder and kidneys, etc.

The application is very simple. The cane-seated bench is divided into two, and a wooden prop is fixed on one end of the bench by means of a simple contrivance, with a cross-board at the top convenient to rest the arms on; then the patient sits astride the bench, and is entirely enclosed in the blanket.

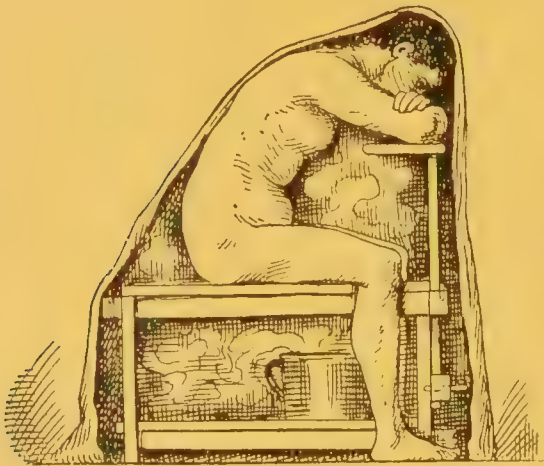


Fig. 125. The Hip Vapour Bath.

The head may or may not be covered in. In the latter case the blanket must be wrapped round the patient and the apparatus, and fastened at the neck with a safety-pin, as shown in Fig. 116. The steam pot is now put on the footboard of the apparatus, drawing the blanket aside a little for the purpose, and the operation begins.

People who do not possess a proper apparatus for the hip vapour bath may take it on a cane-seated chair. (Fig. 116.)

The vapour bath, in which the whole body breaks into perspiration, may last from fifteen to thirty minutes, or even longer. It should be followed by a cooling of the whole system, preferably by taking a body bath.

As in the case of all vapour baths — I shall speak more particularly of this under "Important General Observations on Vapour Baths" — the window must be left open during the hip vapour bath, but it should be closed at the commencement and termination of the bath and during the subsequent cooling.

### The Commode Vapour Bath, according to Kneipp.

This bath is taken — and in this it is "essentially" distinguished from all its "rivals" — on a commode, or night

chair. Being easy to prepare, very convenient to manage, and quite safe from risk, it is especially used in the case of weakly people. As to its application, Father Kneipp writes as follows: "There is always a large vessel in a commode; into this you put a handful or two of herbs, and pour about four quarts of boiling water over them. Then the patient takes his seat on the chair as quickly as possible, so that the steam comes underneath his body. If the opening is rather large, and the steam escapes, a towel must be wrapped round to prevent it. As this steam reaches the body, it thoroughly heats the whole abdomen; the longer it lasts the more heat it gives, until the abdomen is well warmed. After five or six minutes the whole body begins to perspire, and after a time it sweats profusely."

So far Father Kneipp. The bath lasts, according to the worthy father "eighteen to twenty-four minutes" as a rule (? Author). The patient goes to bed afterwards, and continues to perspire, without covering himself too heavily.

The commode vapour bath is recommended for retention of urine, diseases of the kidneys and the bladder, and chills and spasmodic pains in the abdominal organs. So much for the — "commode vapour bath."

## 9. The Leg and the Foot Vapour Bath.

These baths, especially the latter, have a very wide application to the Natural Curative Treatment. The foot bath is useful in cases of congestion of the brain, pains in the head, teeth, eyes or ears, vertigo, giddiness, asthma, respiratory and heart diseases, etc., — in a word, in all cases where it is necessary to draw the blood downwards quickly and powerfully. If other trouble arises during the proceeding, or if the original ones are increased, it is well to apply stimulating bandages to the abdomen, with rather thick bandages on the neck, breast and throat.

Fig. 126 illustrates the "leg vapour bath." As to its application, the legs are put into a miniature vapour bath cabinet. The apparatus has the same internal arrangement as the large cabinet (Fig. 114), with the exception of the seat. The steam is conducted by a rubber pipe from the generator to the cabinet. The bath lasts twenty to thirty minutes, and is followed by a wash with water 62° to 68° F. Let it be noted here, once for all, that the temperature of the water for a wash

or a bath (after a general or a local application of steam) may be reduced — the lower in temperature the hotter the patient

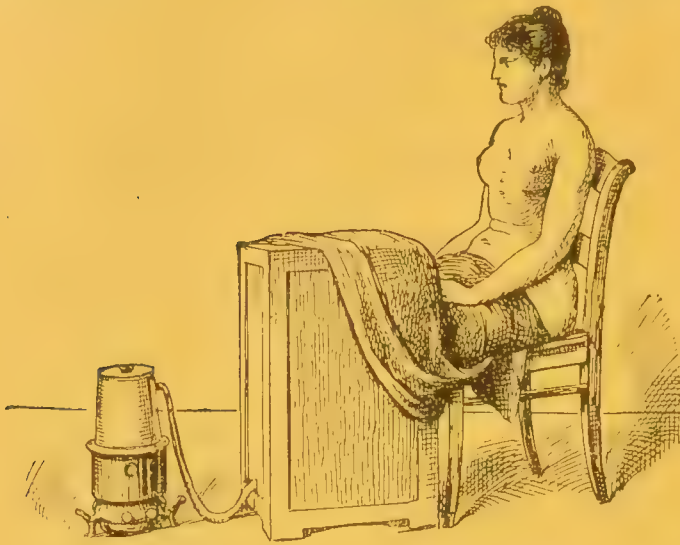


Fig. 126. The Leg Vapour Bath.

and the higher the temperature of his skin — the more abundant the perspiration will be. One may desire to prevent the perspiration of the whole body in a local application of steam, but it is not always possible to avoid this, and there is no disadvantage in it — that part of the body which does not need to perspire is left naked, as shown in Fig. 126.

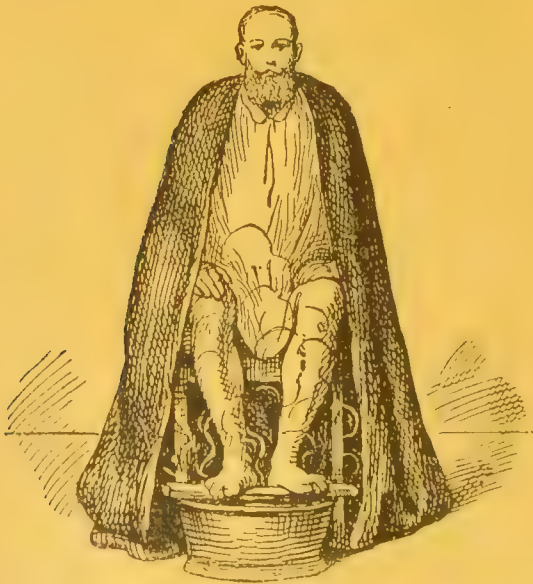


Fig. 127. The Foot Vapour Bath (open).

But if the perspiration does extend to the whole body, the cooling treatment afterwards must naturally also be extended to the whole body. As to the effect and indication for the leg vapour bath, see under "Important General Observations on Vapour Baths."

Figs. 127 & 128 illustrate the "foot vapour bath." A convenient vessel, foot bath, bucket, etc., is half filled with boiling water. On the bath place two stout pieces of wood, taking

care that they will neither break or slip — they should therefore extend about an inch over the sides of the bath. The patient sits on a rather high chair, and is either wrapped up to the neck in a blanket, as is shown in Figs. 127 & 128, or, if it is desirable to avoid an outbreak of perspiration over the whole body, the blanket is put partly under the bath and partly on the chair, so that when the patient sits down only the legs and bath may be enveloped in the blanket. Every five to seven minutes a piece of hot brick, about as large as the fist, is put into the water, drawing the blanket carefully aside, in order to prolong the action of the steam. As a rule it lasts fifteen to twenty-five minutes. It is followed by a cool washing of the feet, and either open-air exercise or a rest in bed. See further, under "Important General Observations," etc.

It is much more convenient to have the proper apparatus for foot vapour baths — a sort of arrangement in which the steam is conducted by a rubber tube from the generator to a pail or bucket-shaped vessel.

Bedridden patients are treated by a "bed foot vapour bath." Apply a stimulating leg or calf.

bandage and a foot bandage, and to these you apply one or three wrapped up hot water bottles (Fig. 124). If the feet are cold, the same directions as to bandages must be followed for the bed foot vapour bath as for all other kinds of bed vapour baths (Figs. 120, 124), namely: The feet must not be wrapped in the wet cloth, but only in the woollen wrapper, and the hot bottle in its damp cloth is to be applied immediately to the naked feet, except for a folded stocking put between the two. A bed vapour bath should always be followed by a cooling treatment (wash), and this by a warming in bed.

### The Foot Vapour Bath, according to Kneipp.

This is applied in much the same way as the one we have just described. Two pieces of wood are laid across a



Fig. 128. The Foot Vapour Bath (closed).



vessel of boiling water, and the feet rest in these. As to the effect of it, Kneipp writes as follows:

"As the feet are generally colder than the head, the hot water alone does not cause much perspiration in them — the heat is not strong enough. Hence one or two pieces of brick, about the size of one or both fists, are put in the fire until they become red-hot; the steel of a flat-iron may also be used for the purpose. When the hot stone is put in the water, it seethes; the heat is increased, and therefore also the quantity of steam. This may also be done in the case of a head vapour bath, when a large amount of steam is required. As a rule, people should not merely dip the legs up to the knee in the steam, but the thighs also, and so a greater quantity of steam is needed. After five or six minutes the sweat pours over the feet, and when the feet and legs have been eighteen to twenty minutes in the steam, a good deal of morbid and foul matter is released and discharged."

A "proper" foot vapour bath acts not only on the feet, but also on the whole system. Hence Kneipp recommends a knee, thigh, or back douche after it. It is useful in cases of long-standing gout, abdominal complaints (digestive, urinary, and sexual disorders), swollen feet,\* etc., and in general for the purpose of breaking up and expelling indurations, stoppages, and waste matter." (Kneipp.)

According to Kneipp, the foot bath — unless some unusual symptoms call for a more frequent application — should not be taken more than once a week.

## 10. The Arm and Hand Vapour Bath.

This bath is subject to the same general rules as the foot bath. It is either used for local effect, for curing rheumatic or gouty affections, indurations, swellings, chronic cold hands, and in general "for releasing," breaking up, absorbing, and expelling deposits of morbid matter in the hand and arm, and for relieving impediments and stoppages; or else it is applied for the purpose of drawing the blood away from

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\* "When the swelling of the feet has its cause in the body," says Kneipp, "the vapour bath must not be applied." One must rather act on the body itself and relieve it of its morbid matter, but not through the feet — in that way the water would be merely drawn from the body into the feet."

the internal vital organs (lungs, heart, or brain). Fig. 129 illustrates the simple way of doing it. It shows a patient holding his arm in an apparatus for arm vapour baths. When it is desired to give such a bath to bedridden patients, you simply place their hands on hot bottles with moist wrappers in the bed.

To take a simple foot and hand vapour bath together, put two hot bottles with wet wrappers in a small box, sit on a chair, rest your feet on the two bottles in the box, lay a footstool upside down across your

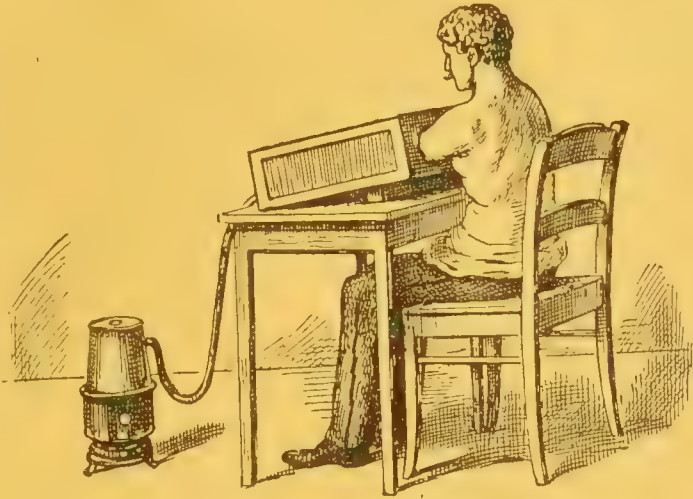


Fig. 129. The Arm and Hand Vapour Bath.

knees, and put another hot bottle in it to rest your hands on. A bath of that kind, and either a hand or a foot bath separately, generally lasts twenty-five to thirty minutes.

The bath should be followed always by a cooling treatment (wash, etc.), and then either open-air exercise or warming in bed.

### The Arm Vapour Bath, according to Kneipp.

The "arm vapour bath," as recommended by Kneipp, is shown in Fig. 130. The blanket is, naturally, completely wrapped around the chair and pail, and well fastened at the patient's neck with a safety or hair-pin, so that the steam may not escape.

"In cases of gouty pains, where the gouty matter has become hard, steam may also be applied; but it is better to wrap the suffering members in a hay flower poultice, and then put them in the steam. In that way a stronger effect and a more abundant discharge is obtained. As there is much heat in cases of gout, a good douche can safely be given after the vapour bath. On the other hand, in case of

poisoning, the sweating must continue vigorously until all the dangerous matter is expelled." (Kneipp).

## 11. The Head Vapour Bath.

This bath (in which the neck also is exposed to the action of the steam) is applied locally for troubles in the ears, eyes, nose, teeth and neck; for ulcers, abscesses, eruptions, etc.; for internal or external growths; and for the purpose of loosening, detaching, breaking-up, absorbing and expelling foreign matter, as well as for relieving pain.



Fig. 130. The Arm Vapour Bath, according to Kneipp.

Fig. 131 shows a patient on the Kühne cane-seated apparatus for vapour baths. But if you do not possess this, you can manage by sitting astride a bench, putting the steam kettle in front of you, and a chair before it, on the back of which you can lean your arms. Or you may sit astride a chair with its back at your back, and put the steam kettle on the seat\* of a second chair, with its back turned away from you, so that you can rest your arms on it over the kettle. Head, steam pot, and apparatus or chairs, are well wrapped up in a

thick woollen blanket, reaching to the ground. The head and neck are steamed until they perspire. Then follows a cooling treatment (wash) of the steamed parts — though it is necessary to extend the treatment to the whole body if perspiration has broken out all over.

It is useful to combine the head vapour bath with a relieving treatment: with a body bath, massage hip bath, stimulating body bandage at night, or a wet wrapper over

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\* In order to protect the cane-seat of a chair (and the same applies to the Kühne apparatus) put a small board across it before you put the kettle on.



the whole trunk in conjunction with stimulating leg and calf bandages, treading in water, walking in water, knee douches, relieving foot baths, and — last but not least — walking barefoot.

### The Head Vapour Bath, according to Kneipp.

This bath (Fig. 132) is said by Kneipp to act by relieving and expelling in case of diseases of the head (ailments of the eyes or ears, gouty and rheumatic affections, toothache, etc.). He recommends it "only for a fortnight, and only twice, or at the most, three times a week." He especially warns us against the application of the head vapour bath in catarrhal trouble, because it would only make matters worse. If the eyes are bad, a strip of linen should be bound across them during the process. It should not last longer than eighteen to twenty-four minutes (Kneipp), "otherwise it may cause various kinds of illness."

In order to improve the "flavour" of the steam and increase its effectiveness, Kneipp recommends adding a little ground fennel to it in cases of eye and stomach complaints — the patient should "breathe the steam of a decoction of fennel." "Fennel,"

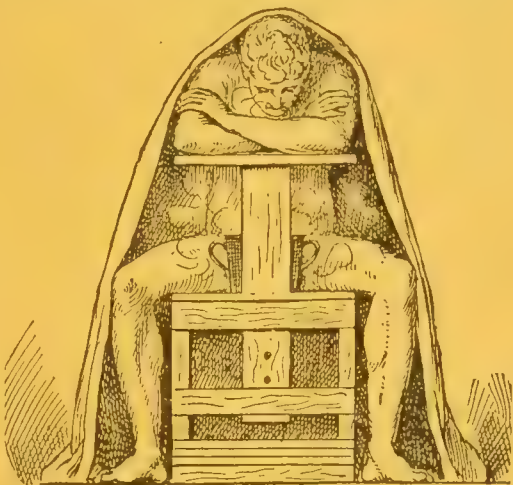


Fig. 131. The Head Vapour Bath.



Fig. 132. The Head Vapour Bath, according to Kneipp.



he says, "is good for the stomach, for the vapour of fennel releases, even internally, when it is inhaled, the matter that is to be expelled. Besides fennel, yarrow, nettles, camomile flowers, and other herbs, may be used. A handful of these herbs, or a spoonful of ground fennel, is enough."

When it is time to finish the bath, the blanket is removed and a douche (see this in Index) is immediately given, in which the head is included. One or two douches are quite sufficient. If this douche is not given, the patient may have a bad headache for more than a day, and may contract a severe catarrh. The relaxation that sets in proves that what remains of morbid matter in the head may increase, and the old condition may be restored.

## 12. Local Applications of Steam.

Just as we can expose the whole body, or any of its members, to the beneficial action of moist warmth or vapour by cabinet vapour baths, bed vapour baths, etc., and by head, arm, hand, leg, and foot vapour baths, so we can also operate on any single part or organ of the system by means of "local applications of steam."

In order to relieve pain, to soften, lessen, break up, absorb, or cause the breaking out of internal or external growths, indurations, tumours, etc., in cases of inflammation of the eyes or ears, toothache, swollen tonsils or glands, faceache, colic, cramp, tumours in the liver or stomach, cysts in the female organs, paralysis, complaints of the joints, inflammation of the periosteum, etc., it is useful to apply "vapour compresses" or bandages. For that purpose you take a well-washed linen cloth, six or eight-fold (table cloth, towel), dip it in a hot water (122° to 145° F.), take it by the corners, wringing it out very lightly or not at all, and put it in a woollen cloth (plaid, shawl, or a piece of flannel), so as to enclose the wet cloth well on every side. The compress is renewed after about a quarter-of-an-hour, and thus you may continue for two to two-and-a-half hours, with renewals. The process ends with a cooling treatment (preferably a wash) of the parts that have been covered.

In case of chronic disease, where there is a question of breaking up and absorbing, and especially of bringing out old indurations, etc., the above bath should not be taken more than twice a day. In cases of inflammation of the

throat, larynx, or breast, the inflamed part is covered entirely with vapour compresses (for instance, in quinsy, whooping cough, etc., the whole of the throat and the upper part of the chest are covered), and stimulating leg, calf, or lower arm bandages are applied at the same time. When inflammation has subsided a little, cooling compresses may be applied (see these in Index). Nature's hint — that is, the instinctive feeling of the patient as to whether he would like a hot, warming compress, or a cooling one, and when he would like it changed — should in most cases decide the choice of bandages and their temperature. However, those who have charge of the patient must carefully bear in mind that, if congestion (pressure of blood) in the head is noticed after applying the vapour compresses, it must at once be counteracted by a relieving treatment (cold neck compresses, stimulating leg or calf bandages, etc.).

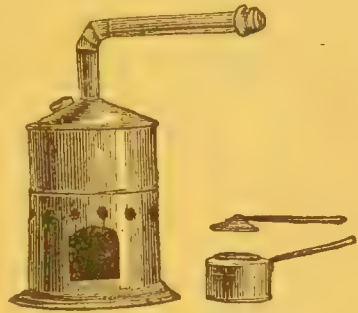


Fig. 133. The Malten Chamber Vapour Douche.

Instead of the vapour compresses, we may use the "Malten chamber vapour douche" with good effect (Fig. 133), which has the advantage of dispensing with the renewal of the bandages, and has the mechanical effect of a gentle pressure of steam in addition to the thermal stimulus.

### 13. Their Application to Children.

Although the same general rules apply to vapour baths for children as for adults, still their want of knowledge, awkwardness, unwillingness and timidity\* make it necessary to admit a number of modifications.

Smaller children, when their condition calls for the application of a vapour bath, should simply be held over a vessel of hot water — naturally at a sufficient distance to prevent scalding — and the child and the one who is holding it should be covered together with the blanket.

Children who are old enough to sit down are stripped and put into a "child's chair," where they may be given a

\* As to this, see also "Directions for the use of the Natural Curatives," etc.

"Kneipp commode vapour bath." (See this in the Index.) The vessel or pot should only be half-filled with boiling water ( $108^{\circ}$  to  $112^{\circ}$  F.), and the child and chair should be well wrapped up in a blanket.

It is well to give the child a three-quarter length wrapper ( $77^{\circ}$  to  $82^{\circ}$  F.) as soon as it is out of the bath.

Older children may have a bed vapour bath in a three-quarter length wrap (Fig. 123), or in a leg bandage (Fig. 124), or on a cane-seated chair (Fig. 116.).

As soon as we notice anything abnormal in a child, it should be given a bed vapour bath at once. In this way you either kill a disease in the germ, or else you bring out the foreign matter from its system. The complete symptoms of disease (measles, scarlet fever, diphtheria, etc.) are often completely developed after the first vapour bath.

#### 14. Important General Observations on Vapour Baths.

The vapour bath is not only an excellent means of encouraging the curative process in all kinds of illness, by loosening the morbid matter and preparing it for removal, or even removing it itself, but it is also particularly useful for warding off disease.

By the application of moist warmth the skin is thoroughly cleansed from all dirt, the loosening and shedding of the dead cells of the epidermis is promoted, the blood stream is diverted to the surface of the body, the latter is warmed, the internal organs are relieved of the excessive pressure of blood, and a refreshing flow of perspiration is induced, which generally takes out with it an amount of morbid matter. But these processes are not without a reaction on the whole system. The entire substance of the body is thrown into a state of fermentation; the whole life of the blood shares in the beneficent action of the moist warmth. The cooling treatment that follows a vapour bath not only hardens the skin against the temperature of the external air by contracting its blood vessels, but also considerably stimulates the nervous system.

The result of all these processes is a feeling of lightness after a vapour bath, an increase of recuperative power of assimilation, a great change in the blood, and an increase

of the excretions with the exception of urine, as the skin and kidneys are reciprocally related, so that when one organ is unusually active the other is less active.

However obvious these advantages of the vapour bath in point of health may be, they necessitate certain restrictions in the use of it, in order to avoid injury to the system. For instance, people should never take a vapour bath immediately after a meal, or heating bodily exercise, or when there is anything wrong with the heart, or in certain stages of debility or congestion, chronic disease of the lungs, etc. Also, in cases of high fever, a vapour bath should never be taken without the advice of a physician.

It is recommended for the cure of ailments caused by chills, colds in the head, coughs, bronchial catarrh, and attacks of influenza, etc., and in the first stage of fever, the so-called "cold stage." The instinctive feeling of the patient must decide in such cases — those who feel cold naturally desire to warm themselves. The rapid heating of the surface of the body and the increased flow of blood to the skin relieves the internal circulation, and soon restores the equilibrium of the temperature of the body. Even in the third stage of fever, called the "perspiring stage," it is useful to give vapour baths. In all these cases, as I said, the use of the vapour bath, complete or partial, is recommended, especially in complaints where the subjective and objective feeling of cold at the surface of the body, the epidermis, imperatively calls for a heating of it. A hot, dry skin — such as is present in the second, or "heat stage," of fever — is a sign that we must not apply vapour baths — this is a time for cool, if not cold, treatment.

With a due attention to these principles, whole or partial vapour baths — according as you want to warm the entire body or only part of it — may be given in all cases of acute illness (diphtheria, affections of the lungs, scarlet fever, measles, intermittent fever in the cold stage, etc.), of blood poisoning of all kinds, etc., with very favourable results, only — do not try to force perspiration, but merely prepare the way for it. This is extremely important, and it is in this that most faults are committed. The morbid matter must first be gradually loosened, brought into the current of the blood, and when it is ready for discharge through the skin, the perspiration comes of itself, during a vapour bath or otherwise. Force nothing! is a fundamental



principle of the system of Natural Treatment. The taking of long vapour baths, in cases of heated, acute, feverish disease, merely for the purpose of causing perspiration, must be considered a violent proceeding. In the use of a vapour bath during acute illness, we look to the application of this extremely important moist heat only for the purpose of warming and of loosening and detaching morbid matter.

I repeat once more then, do not be excessive either as to the length or the temperature (not over  $107^{\circ}$  to  $111^{\circ}$  F.) of the vapour bath. It has merely to increase the internal warmth of the body, strengthen its power of reaction, and prepare it for a subsequent application of cold water.

In case of chronic disease, very frequently the main point in the treatment is to relieve the diseased organism of the self and foreign poison deposited in it. In many cases this purpose is obtained by the vapour bath, to which a full or three-quarter length bandage is afterwards added in order to increase the effect.

In conjunction with the other natural healing principles, a curative treatment of this kind, intelligently given and without excesses, is often very successful in cases of rheumatic or gouty affections, the large variety of nervous and female complaints, disorders of the circulation, digestion, and metabolism, and especially in cases of anæmia and poverty of the blood, diseases of the liver, spleen, stomach and kidneys, sciatica and neuralgia, syphilis, mercurial disease, paralysis, etc. Naturally the same rule applies in chronic diseases also — "Moderation in all things." The vapour bath must be adapted to individual cases with a careful regard to the constitution, age, sex, form and degree of illness of the patient in deciding the frequency, duration, and temperature of application. Elderly people, and women with child should never take a vapour bath, or, at all events, only with the greatest precautions.

Stronger persons may choose cabinet or cane-chair baths; weaker people should have bed vapour baths. If it is desired to act on particular parts of the body, local baths should be taken; here again bed baths (local) are more suited to the more delicately-constituted patient.

Every vapour bath should be followed by a cooling treatment. It may consist of a full bath, at a temperature of  $86^{\circ}$  to  $92^{\circ}$  F., a half-bath at  $83^{\circ}$  to  $90^{\circ}$  F., a body bath at  $74^{\circ}$  to  $83^{\circ}$  F., a "slapping" at  $74^{\circ}$  to  $83^{\circ}$  F., or a wash at

68° to 77° F. Chronic invalids then warm themselves, either in bed or by a walk in the fresh air.

The hot bottles, which serve to warm the hands and feet in feverish conditions, should only be allowed to remain until they have fulfilled their purpose. If they are continued, they heat the patient and increase his feverish temperature. If the hands and feet become cold again, simply repeat the proceeding. (As to the effect of these hot bottles on the entire organism, when applied to the extremities, see p. 183, 184)\*

It must be most particularly noted that vapour baths are only to be taken where the air is fresh. Hence the window must be left open during the bath. The breathing of good, pure air increases the oxidising process in the living substances of the body. In any case the temperature of the room in which the bath is taken should be about 65° to 68° F.

During the vapour bath the patient should have cooling compresses on the head, which must be renewed as soon as they get warm.

The cabinet vapour bath should rarely last more than fifteen to twenty minutes in cases of chronic disease; the bed vapour bath should not be for more than one-and-a-half to two hours. The proper time to discontinue the bath is when perspiration appears on the forehead.

My readers will now understand that the proper use of the vapour bath demands a good deal of care and study. Hence, to be on the safe side, it is better to do too little than too much. But the application of the bath must on no account be given up altogether, through fearing that it may do an injury. After washing, it is the most important means of guarding against disease for civilized man, who has to live in an atmosphere that is saturated with bacteria; it is also a very commendable means of cleansing and hardening. However, here I repeat my warning — let there be no excess. The vapour bath is a good thing, and good things must be used sparingly.

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\* In cases of apoplexy, a cold body bandage and stimulating calf bandages are given in addition. When children are unwell, first feel their feet, and if cold, apply a hot bottle with a wet wrapper to them at once, and a whole host of nasty symptoms will immediately vanish, as if by magic, by so simple a means.

## V.

## Douches and their Application.

## 1. The Kneipp Douches.

The great merits of Father Kneipp, with regard to the popular or natural science of health, culminate in the application of his "douches," which, in a sense, claim the lion's share in his extraordinary cures.

He was the first to add douches to the appliances of the Natural Treatment physician; and they will be as firmly incorporated into the system of water treatment, and will inscribe the name of Kneipp in indelible letters in the annals of the water treatment as certainly as bandages, especially the body bandage, and the different forms of baths, will always be associated with the name of Priessnitz.

The whole secret of the action of the Kneipp douche may be given in a few words:

A thermal stimulus of brief duration, closely associated with a mechanical one, exercises a quickening effect on the system. A Kneipp douche lasts only a few seconds, as a rule, at the most one to two minutes, and so it causes an immediate reaction through the co-operation of the two stimuli. The colder the water, the warmer the body, and the shorter the douche, so much the greater is the stimulation, and so much the more quickly does the reaction — that is, the warming of the body — once more set in.

The stimulus which is caused by a cold douche dashing on the nerves of the skin is immediately transferred to the central portion, the brain, where it is felt as cold. The brain at once informs all the nerves of the vascular system; these, again, the blood vessels, which contract, increase the pressure of the blood internally, and reduce the pressure at the surface of the body. By and by the vessels in the skin relax and expand, and fill with plenty of blood once more; the blood flows by the terminations of the nerves, which telegraph the sensation again to the brain, where this second message is felt as warmth. If, on the other hand, a cold stimulus on the surface of the body were to last too long, the blood vessels would not expand again. They remain

contracted, the pressure of the blood in the interior of the body increases, the skin assumes a blueish tint, and a most dangerous condition may be set up. (See also under "The Cold Full Bath.")

The reader will now be in a position to appreciate correctly the meaning and the importance of a brief application of cold water, and will no longer share the erroneous notion that the more you do the more effect you will have. In using douches we act through the two nervous centres on the entire organism, and carry their effect deep into the interior of the body, without, however, causing too great a loss of heat to the entire system. By means of the douches the morbid matter that has settled in the system is loosened, detached, and passed into the current of the blood, so that it may be expelled. (As to the effect of the cold water, see also p. 443, especially p. 446, and see p. 296 as to "Douches.")

In the use of douches all depends — as we have learned from the preceding — on the rapid occurrence of a reaction or re-warming. If this reaction is long in coming, as often happens in the case of poor-blooded, weakly, sensitive, nervous people, bed vapour baths should be combined with the douches. This causes a more rapid re-warming and relief from the internal pressure of blood, and we must not at once give up so excellent a means of restoring the circulation and distribution of the blood to its normal condition, improving the formation of blood, stimulating the function of the excretory organs, and especially of most effectually promoting the renewal of substance. Douches are only taken in cases of chronic illness, and especially those which depend on disorders in the circulation, irregular distribution of the blood, imperfect formation of blood, corruption of the humours, etc. The action of the douche depends on the physiology of the nerves of the blood vessels and their reflex functions. Once a growth (cyst, polypus, etc.) or an exudation is caused in any organ, then the other healing principles of the natural treatment come into play — those which, like bandages, etc., cause the body to produce moist heat, or those which, like vapour baths, etc., apply moist heat artificially to the diseased organ.

It scarcely needs discussion to show that the douche is an important means of hardening the system.

Douches are given either with a large watering can or a pipe. When there are water fixtures in the house, you



fasten an indiarubber pipe, of two to three yards length, to the tap. A second person must be at hand to administer the douche. He lets the jet of water fall alternately high and low on the part of the body to be treated, but the jet must not be allowed to spread before it touches. Kneipp recommends the application of the douche with a certain amount of pressure. Before it is given the body should have at least a normal temperature. Perspiration need not prevent one from having a douche, as long as the heart and lungs are

steady. Knee and thigh douches may be given, although the feet are cold.

The application and the dressing afterwards must both be quickly done. The body, exclusive of the head and hands, is not dried after it; it must be warmed again, either in bed or by brisk open-air exercise. The bath room should have a temperature of 66° to 68°F. The colder the water the more effective the douche.



Fig. 134. The Downward Douche.

People who have pressure of blood on the brain should wash the head, face, neck, upper part of the breast, arms and armpits, with cold water, before every douche (except the head, face, and ear douche).

As a rule the douche must only continue until the skin begins to redden. The douche has only to awaken the body's force of reaction, not to accomplish the reaction itself.

### The Downward Douche.

The "downward douche," which may be given either with a watering can (Fig. 134) or a pipe (Fig. 135), causes a

contraction of the blood vessels of the larynx, gullet, jaws, and nose. It is therefore recommended for catarrhal affections of these organs and for blood stoppages in them.

When applied to the left and right of the vertebral column, the douche acts, by expanding the blood vessels in the reaction, on the bronchial tubes, stimulating them to an increased mucous secretion. If the jet is directed to the border of the neck between the shoulder-blades, it has an influence on the sympathetic nerves of the body. Hence it is useful for curing headache, congestion of the brain, palpitations, etc., and for stopping bleeding at the nose. In conjunction with knee and thigh douches, it helps to regulate the entire circulation of the blood.

It is given in the following way:

The patient, who does not need to take off his trousers, stockings and shoes, rests both his arms on a piece of wood placed across a hip bath, or other



Fig. 135. The Downward Douche.

suitable vessel (Figs. 134 and 135), or on a footstool placed in the bath. The upper part of the body must be horizontal, or sloping a little towards the bath, so that the water may run into the latter and not into his stockings.

The attendant now begins the douche at the right hand (Fig. 136 a), passes on with the jet of water until it comes underneath the right shoulder-blade (b), then down the right half of the back to the point (c), letting the water flow here so as to spread as evenly as possible over the whole back in the form of a plate, and then on to the other side.

In the case of weaker patients, when the right half of the back has been treated and the jet has reached the point (c), one may begin again from the left hand, passing from the point (d) over (e) and (f), and leaving off either at (f) or at (c).

Care must be taken, in giving the downward douche, that the jet of water does not directly strike the spinal column. For a moderate douche you need, according to Kneipp, eleven to fourteen quarts of water; double that quantity for a stronger douche\*. It lasts, as a rule, one to two minutes.

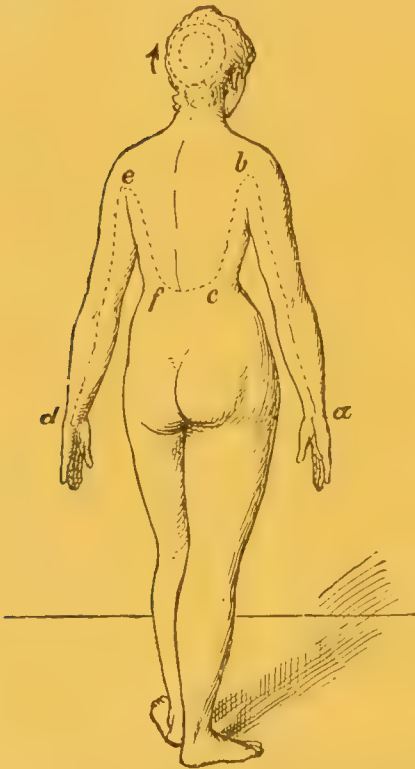


Fig 136. The Downward and Head Douche.

### The Breast Douche.

The breast douche is generally combined with the downward douche, and serves to strengthen the pectoral organs. "The breast douche," says Kneipp, "is bracing and relieving, brings mucus away from the chest, and makes it feel lighter; it is three or four times as effective as a wash.

The patient supports himself in a sideward position, with one hand on the border of a hip bath (Fig. 137), and endeavours to bend sideways over it during the douche, so that the water may flow broadly over the whole chest. The arm which supports the body is

flushed first; then the jet is brought slowly from the point (a) (Fig. 138) to the point (b) on the breast, that is, to the point whence it will be easiest for the water to flow broadly over the breast. The douche lasts, as a rule, one to two minutes.

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\* Kneipp himself writes of it: "When the patient has already taken several douches, and has made some progress, you take three or four watering cans (a can = eleven to fourteen quarts. Author); for a strong constitution, already pretty well hardened, six, and, if he is willing, even seven or eight cans may be used. If the patient bears the douche easily, the stronger one is the better to use."

"In taking the breast douche," says Kneipp, "the heart must be in good condition, that is to say, there must be no defect in it. From one to three cans of water may be used."



Fig. 137. The Breast Douche.

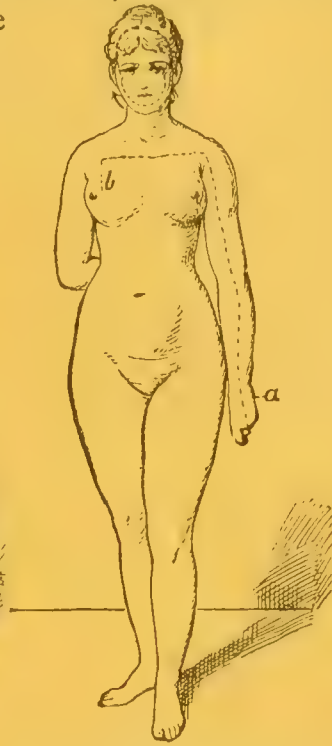


Fig. 138. The Breast and Face Douche.

### The Back Douche.

The back douche is really only a continuation of the downward douche. It is especially recommended for strengthening the sexual organs. It is then given chiefly about the loins, kidneys, and buttocks. As it is a good application for attracting the blood, it may be given with advantage in cases of failure of the periodic discharge in women, or of impotence in men, etc. In cases of hemorrhoids, the back douche must be given with great care, as it may cause an undesirable increase in the discharge of blood. Otherwise, it acts very beneficially on the functions of the abdominal organs. It is only to be avoided when there is inflammation.

The back douche is given in the following way: You begin the douche at the right heel (Fig. 140a), bring the jet up as far as (b), and then back again to (a); then begin with the left heel (c), take it up to (a), pass from (a) to (b),



then upwards as far as (e), down again to (b), back across to (d), and from this up again to (f).

The douche should not be given too high, as the water is not to flow over the breast and abdomen. The front of the body is not flushed. The douche lasts one to two minutes.



Fig. 139. The Back Douche.

"The water in all douches should flow steadily and broadly, like a plate, over the part to be treated," says Kneipp, "this is of particular importance in giving the back douche. You often hear people say that they cannot stand the back douches. It gives them pain, especially in the head, and causes a good deal of restlessness. In such cases the douche has certainly been given wrongly.

That is why I insist, particularly in the case of the back douche, on an even flow of the water, and so prefer the watering can, which is better, in fact, for all douches. The can is much easier to handle, so as to make the water form a perfect plate over the back. Hence that douche is the best where the broadest water surface flows over the back.

" . . . . The more steadily and continuously the water flows over the middle of the back and the sides, the better has the douche been given. It is a mistake to turn the back douche into a syringing of the back, and then to let the water flow over it ten to twenty inches broad; and it is also wrong to dash the water superficially over the back, as if it were

merely a question of pouring a certain amount of water on it.

" . . . In giving a douche to weakly, nervous, and infirm people, only one can of water should be used at first. When the patient has grown accustomed to the water, after two or three douches, you can take two cans — the can containing eleven to fourteen quarts; you can gradually work up to three or four cans, and when the condition of the patient has improved, and his constitution is stronger, you can safely give from six to eight cans of water.

" . . . When the patient has had a number of back douches, you can begin at the upper part of the back without his noticing any difference. The reason is that the douches have already restored the circulation of the blood."

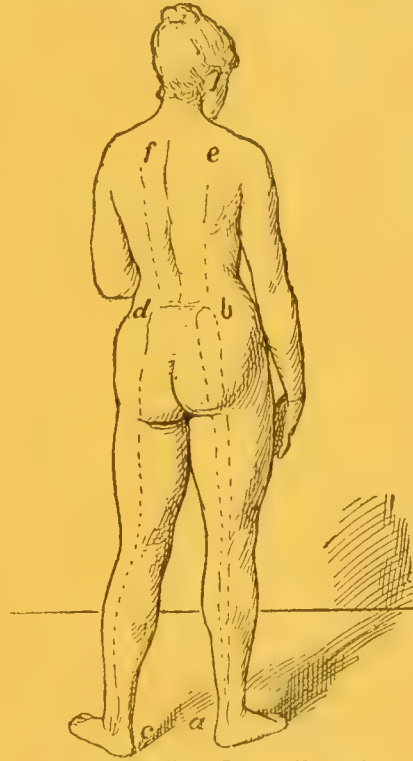


Fig. 140. The Back Douche.

### The Thigh Douche.

The thigh douche (Fig. 141) stimulates the functions of the kidneys, liver, bladder, sexual organs, intestines, etc., hence it is useful for people who suffer from constipation, hemorrhoids, catarrh of the stomach and intestines, etc. In particular, if the inner surfaces of the thighs are well flushed, one can cause movement of the bowels, and a discharge of blood from hemorrhoids, or in connection with menstruation. Hence, in case of delay or obstruction of the monthly flow and its symptoms, anæmia, certain forms of hysteria and hypochondria, impotence, etc., the thigh douche will be found useful. It dilates the blood vessels of the abdomen, and regulates the circulation.

As to the way of giving it, the patient may retain his upper garments; he need only remove his trousers, shoes, and stockings.

The douche begins at the right heel (Fig. 142) (a); then the jet is carried up the centre of the leg, stopping for a moment at the middle of the thigh, and taking a sideward turn, so as to wash the whole thigh with a broad sheet of water. Then it travels slowly upwards, as far as (b), to the region of the kidneys, afterwards returning down to (a). Then one begins at (c), on the left heel, repeating the process we have described on the left leg as far as (d). Afterwards the right leg is treated again, and so on for three or four times in succession.

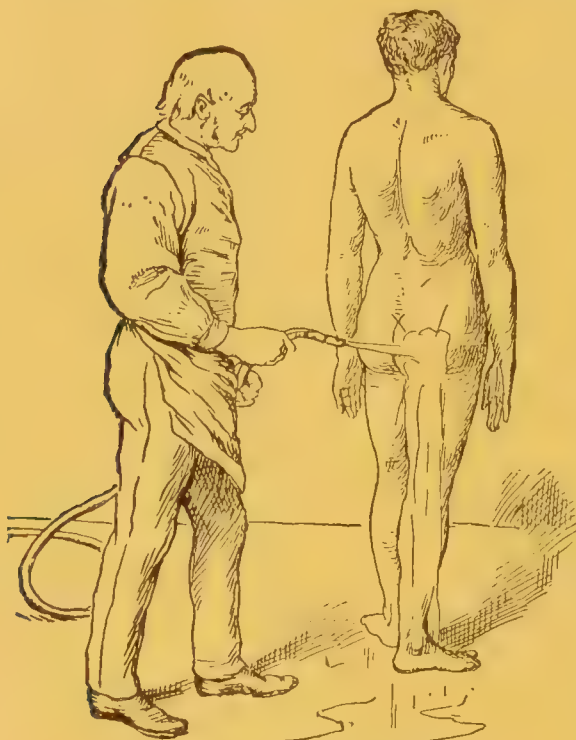


Fig. 141. The Thigh Douche.

the upper part of the abdomen, because from these points one can act most efficaciously on the functions of the intestines.

The thigh douche, as a rule, occupies one to three minutes. Even and slow flushing ensures a successful result. It may be given from twice to four times a week.

### The Knee Douche.

The knee douche, as a stronger form of foot bath, is especially useful for relieving the pressure of blood; it attracts the blood to the feet, and so restores its normal circulation and distribution. "People who suffer much from cold feet," says Kneipp, "should often take a knee douche — two or three times a week. In my opinion, people who have

weakened their constitutions can brace the entire system by means of the knee affusion."

It is often combined with foot vapour baths, for the purpose of curing congestion of the brain, giddiness, vertigo, chest complaints that depend on congestion, etc. As it is possible to act (by reflex action) on the abdominal, and especially the female organs, by the knee douche, its use is recommended in all cases where it is desirable to contract

the blood vessels of the womb—for instance, to relieve hemorrhage of the womb or pain in child-birth, as the knee douche causes, in its reaction, a contraction of the muscular fibres of the womb. It is also useful for curing certain forms of disease of the kidneys and bladder.

The way of administering it is simple: You begin at the right heel (Fig. 144 a), go slowly up the middle of the calf as far as the knee-cap (b), and let the water flow evenly over the whole of the calf. Then direct the jet to the left heel (c), and go up as far as the left knee-cap (d). When this has been done on both legs four or five times in succession, the patient turns round. You begin at the right toes (a), travel slowly upwards to the knee (b), let the water flow evenly over the knee and calf for some time from this point, and then pass to the left foot, etc.

The douche generally lasts one to two minutes. It may be taken three or four times a week.

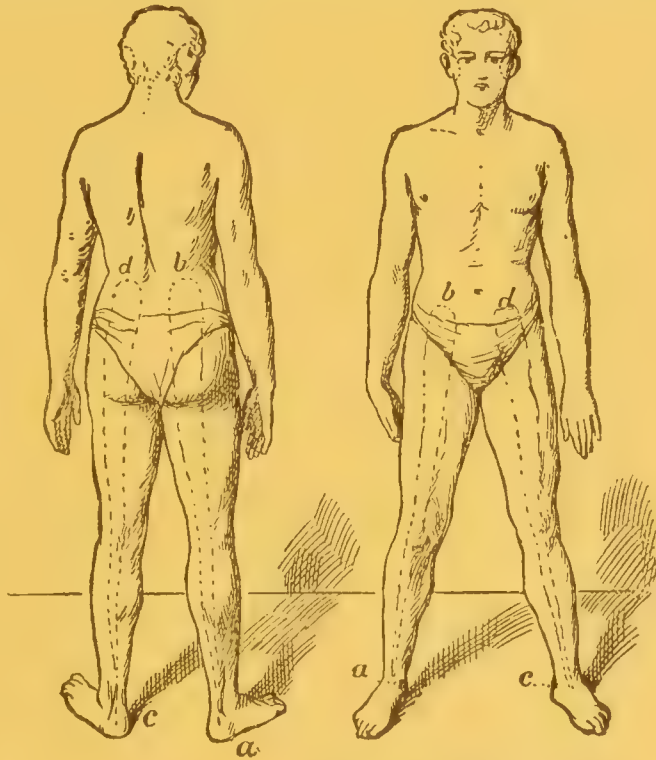


Fig. 142. The Leg and Abdominal Douche.



"In this douche also," says Kneipp, "it is not immaterial how the water is poured over the knees and the feet. It must run quite evenly over the foot, much the same as when you grasp the calf with both hands and stroke it downwards."

### The Full Douche.

The full douche is an application of water over the whole body, and must only be taken after partial applications



Fig. 143. The Knee Douche.

— downward, breast, thigh, knee douche, etc. — have been taken for some time. It is only suitable for the more robust and vigorous, but, at the same time, torpid constitutions in which it is desirable to stimulate the circulation of assimilating matter.

It may be applied either in front (Fig. 145) or behind (Fig. 139). You begin it from behind at the right foot (Fig. 146 a), travel upwards as far

as (b), then down again to (a). Then it is the turn of the left leg, and the jet is carried from (c) to (d), from (d) to (b), (b) to (e), down again to (b) and (d), and from here up to (f) and (g).

When the back has been flushed for some time, the patient turns round, and is flushed in front in the same way, choosing a spot on the breast from which the water will flow evenly over the abdomen and thighs.

With weaker people the douche always begins again at the feet, and the same process is repeated in front as we described for the back (a)—(g); with stronger people the jet may be immediately directed to the breast.

The douche lasts two-and-a-half to three minutes. It is taken, in combination with other douches, about two or three times a week.

Kneipp writes of it as follows: "It is easy to secure an even flow of the water over the whole body by a suitable position, especially by bending forward a little; in that case the water flows well over the back and the front of the body. The steadier and more even the flow of the water the more healthy is the full douche. It must not be supposed that you are giving a full douche when you squirt water all over the body in a most irregular

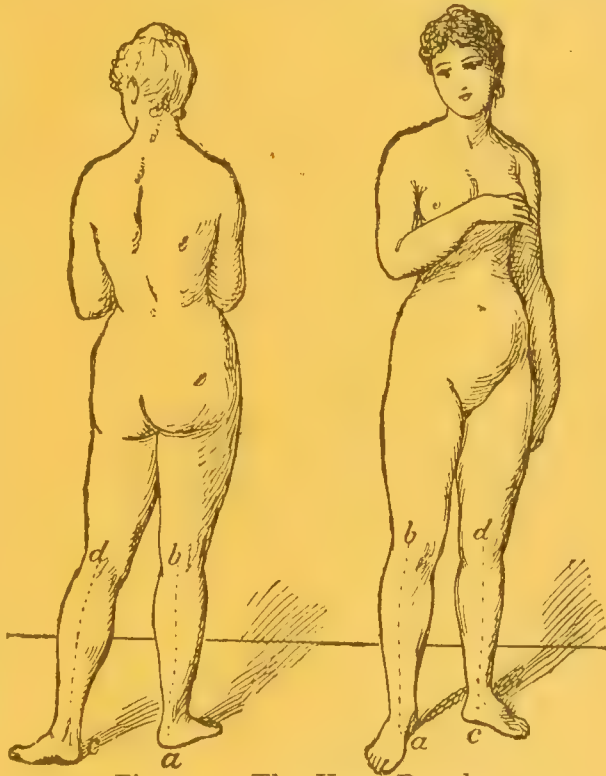


Fig. 144. The Knee Douche.

fashion, either with the can or a pipe. I repeat — the steadier, broader, and more even the flow of the water the better will be the result. When a number of douches have already been experienced, as a rule, from two to eight, or even ten cans of water may be used. For the full douche a weakly person should have one or two cans of water, it is far beyond his capacity to stand eight to ten cans of it.

" . . . . In the case of children the full douche should often be given. It is given first at the back, proceeding upwards, and staying a little at the shoulder to let the water run over the whole body. Then the front side is also flushed. It is usual to begin with one can of water for the

whole body; after a time two cans may be used — one for each side. Children are very fond of the douche.”

### The Lightning Douche.

The lightning douche (Fig. 147) is a powerful stimulus to the skin, and differs essentially from all other douches in the degree of force with which the jet strikes the body.

The special mechanical force which is contained in the more or less violent impact of the water on the surface of the body gives the lightning douche — that is beyond dispute — an effect like that of massage.

It is one of the finest means of promoting metabolism, and it directly stimulates the respiration and the action of the heart — but, as a rule, it must only be applied in special cases, where people are very strong and possessed of a strong resisting power. It is not for weakly and nervous people, and those who suffer

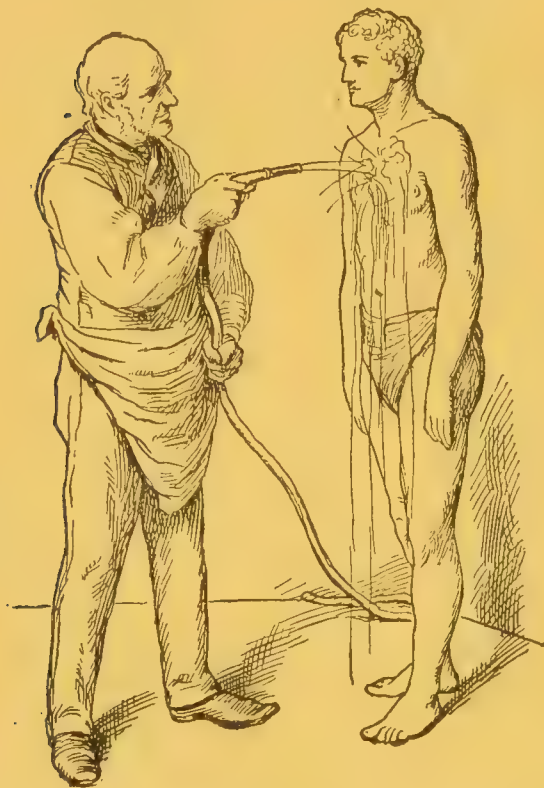


Fig. 145. The Full Douche.

from heart or lung disease — for the great category of the “imaginary healthy.” For them it would be like a whip for an overworked horse. It would stimulate the vital force for a short time, but leave it weaker and lower than ever after taking away the stimulus. Hence no chronically unsound person should take a lightning douche without the sanction of a physician of the Natural School. On the other hand, it is very useful in combination with local vapour treatment, for curing external growths, tumours, indurations, gouty swellings, etc.; in this form it may be taken

safely even by delicate persons. When it is applied locally, it breaks up and promotes absorption into the humours of morbid matter.

For the lightning douche the jet of water is slender; the opening of the pipe must only be wide enough to admit a thin lead-pencil. The pipe should be held about three to five yards away from the person to be treated, and the douche should last three to five minutes.

The douche begins at the right

heel, travels slowly upwards to the loins, down again to the heel; the left leg is similarly treated, and then the jet crosses from the left loin to the right shoulder; then down the right arm to the hand, up again to the right

shoulder-blade, and up and down the back vertically, then down the left arm and up again, backwards and forwards across the back horizontally,

and at the back of the head, going round it in a circle; then the patient turns round, and the same programme is gone through in front, not omitting the face douche.

The direction which the jet of water should take is clearly indicated on Fig. 148. In the winding course on the back, the attendant should "whip" the patient with the water, which is done by moving the pipe backwards and forwards quickly.

The lightning douche will always be retained in the establishments for the water cure and the Natural Curative

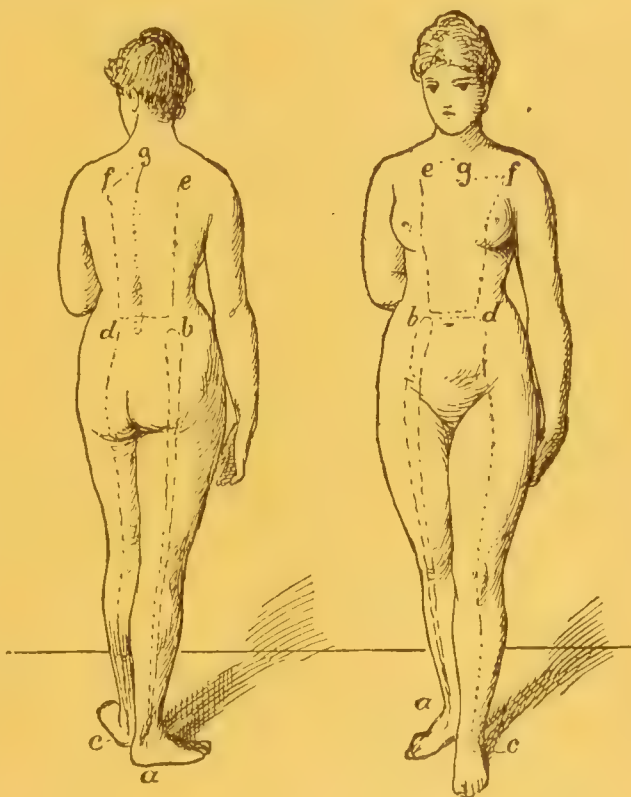


Fig. 146. The Full Douche.



Treatment, and here only can it be given with proper attention to individual needs. Those who think the whole secret of success in water treatment lies in the force of the application, will find, on this assumption, that the use of the lightning douche is the best and most perfect means of — ruining themselves.

### The Head Douche.

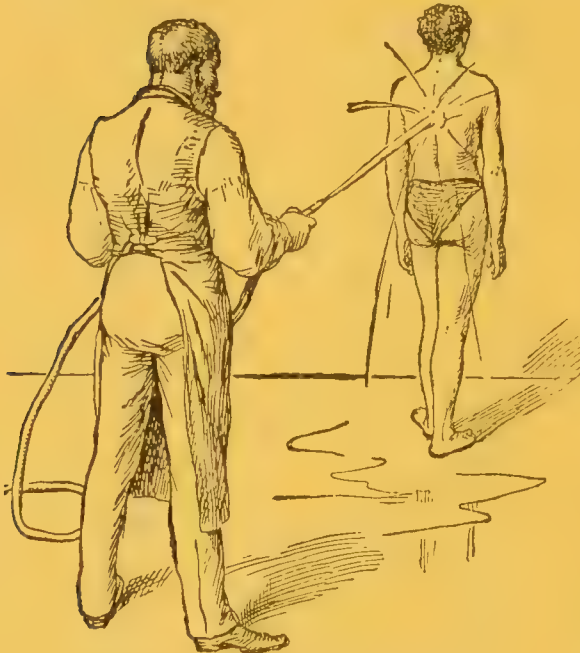


Fig. 147. The Lightning Douche.

The head douche (Fig. 149) serves the purpose of strengthening the head. It is very rarely given, and then only with great care.

The patient bends over a hip bath, on the borders of which he supports himself with both hands, and a stream of water is then poured on and round the head, as is shown on Fig. 136. The head must be dried afterwards. The patient need not take his clothes off for it.

### The Face Douche.

The face douche (Fig. 150) is administered, according to Kneipp, "generally in cases of abscesses, lupus, and similar diseases."

The way to do it is shown on Fig. 138. The jet of water must be thin, and must be carried round the face four or five times. The face is dried afterwards. The patient need not take his clothes off.

### The Ear Douche.

The ear douche is recommended by Kneipp for curing diseases of the ear. The patient bends over a small bath,

as shown on Fig. 151, and turns his face a little towards the attendant. The stream of water is passed four or five times round — not in — the ear.

“But if any water does go in,” says

Kneipp, “it does not matter.” After the ear douche the head must be dried and well covered, until the patient is quite “dry behind the ears.”

In a warm room it is not necessary to cover the head. The action of the ear douche removes blood stoppages, according to

Kneipp, and strengthens the ear and every part of the head.

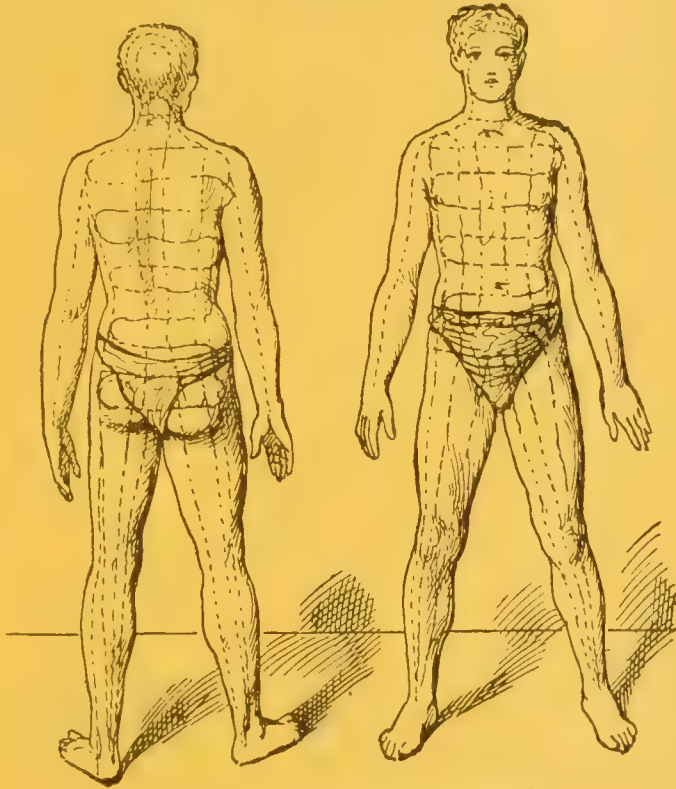


Fig. 148. The Lightning Douche.

### The Arm Douche.

The arm douche (Fig. 152) is used in cases of cramp of the arms and hands, paralysis, rheumatic and gouty affections, etc. The douche begins at the fingers, and the jet is worked slowly upwards to the upper part of the arm, letting it play for about a minute in the region of the armpit, so that the water may flow evenly over the whole arm. Then the jet is worked downwards again to the hand, and the douche is finished. It lasts one to two minutes. It may be taken frequently — even every day — as it has a relieving effect on the head and breast. The arms are strengthened and hardened by this douche, just as the feet and lower parts of the legs are strengthened by the use of the knee douche.

## 2. The Douche (the Current Douche).

In Priessnitz's time, and long afterwards, the douche was an essential element in the water treatment. But it gradually fell into discredit through abuse, like the Priessnitz cold full bath, until Father Kneipp again restored it to favour in the modified form of the lightning douche.



Fig. 149. The Head Douche.

The douche, as it is used at the present day in establishments for the water treatment and the Russian vapour baths and Roman-Irish baths, consists of a jet of perfectly cold water of varying thickness, which either falls vertically, obliquely, or horizontally, or else rises vertically from

the ground (for treating the rectum and the uterus). Douches with several jets of water are called rain baths, shower baths, and dripping or falling baths.\* The douche derives its force either from a fall from a high level, or from pressure which is given to it by mechanical appliances. The greater the fall or the stronger the pressure of the jet, so much the more powerful is the impact of the water on the skin. The strength of the douche is also modified by altering the

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\* A good deal of nonsense is talked about these douches. They talk, for instance, of divided douches, circular douches, etc., which are given through mouthpieces specially designed for these purposes. Already a special kind of douche has been "invented" for every part of the body, the scientific names of which, generally very high-sounding, impress the laity a good deal.

thickness of the jet of water, which varies from one-third of an inch to an inch. The more force the jet has the less must be its thickness. There are open and closed douches. In the former the water generally runs in a steep channel, supported on a high wooden trestle, one-and-a-half to two-and-a-half inches wide, and pours, in a stream of the same width, on the bather, who is a yard or a yard-and-a-half below it. This is what they call a "falling bath." In the closed douche the water runs through a metal pipe, which is provided with a mouthpiece with

a small opening. The aperture of the mouthpiece varies, in order, as I said above, to give a jet of from one-third of an inch to an inch in width. The closed douches, to which

category the Kneipp lightning douche belongs, are almost the only ones used in the system of water treatment, as the jet they give is more concentrated.

When applied lo-

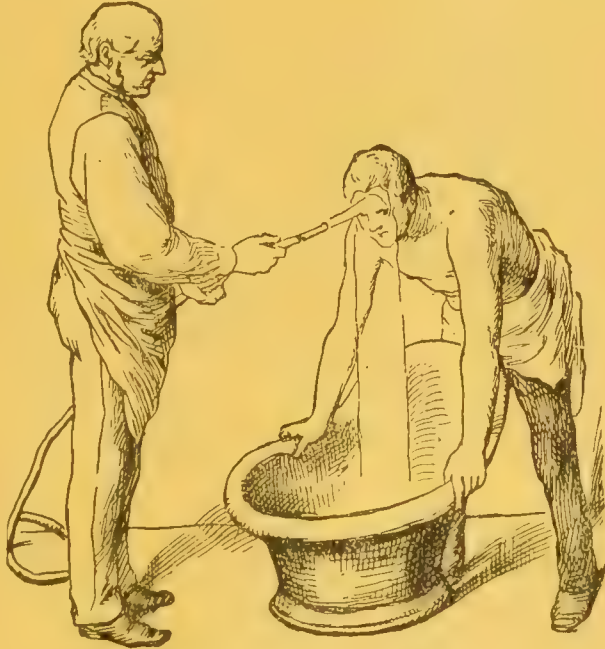


Fig. 150. The Face Douche.

cally, they are extraordinarily useful for breaking up and absorbing indurations, tumours, etc., and in cases of old rheumatic and gouty affections of the joints, paralysis, stiffness, obstructions and stoppages of every kind. Long-standing pains, of a rheumatic character, for instance, due to accumulations of morbid matter, which will yield to no other treatment, are often cured by a judicious, tactful, and brief application of the douche. People must not be deterred from continuing the application by the burning pain which arises in the parts treated, but should persevere until this pain also is "killed" (Munde).

"This exterminating douche has a philosophic foundation," writes Dr. Munde, in his "Hydrotherapeutics." "By constant



renewal of the cold water, and its dashing continually on the same spot, the reaction of the nerves involved is exhausted, and the molecules of the nervous substance become stiff and immoveable for a time. The reaction sets in slowly, and the stiffened particles gradually return to their normal condition and their ordinary functions. But, as a rule, this strong effect on them does not fail to make a permanent impression. This function of the douche recalls the new

treatment in surgery, in which the parts to be operated on are first rendered insensible by cold.

"In cases of dislocation of bones as a result of syphilis and mercurial treatment," he writes again, "the continued local application of the douche is often the only means that will help, after iodine and other things have long been tried in vain. So also in cases of white swelling at the knee (tumor albus), and other

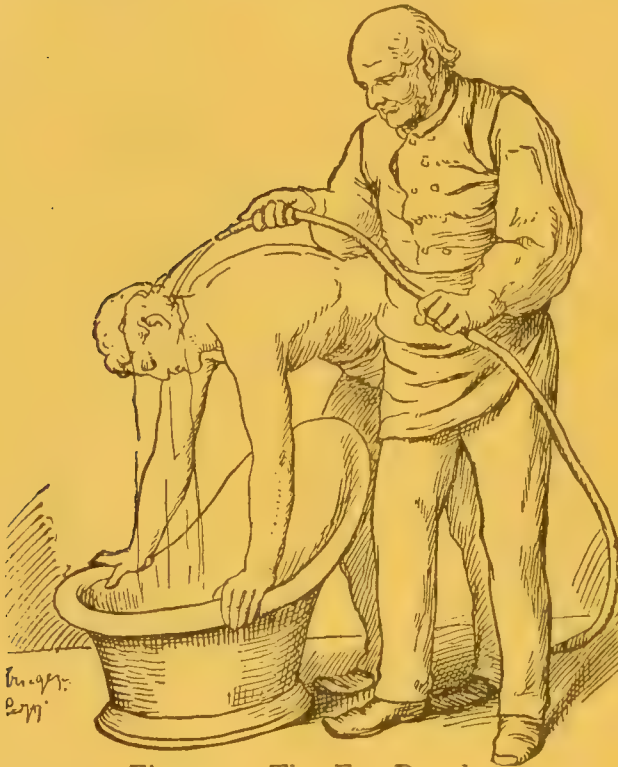


Fig. 151. The Ear Douche.

swellings. The so-called tubercles of gout, and other symptoms, always disappear after the use of stimulating bandages together with the douche.

"When it is begun cautiously and strengthened gradually, in cases of curvature of the spine and weakness of the back the douche is of the greatest service — much greater than other things, even than orthopædic means and gymnastic exercises, though these latter remedies may be combined with the use of the douche. It is ridiculous, sometimes, the way even learned doctors carry on with diseases of that kind, passing from one remedy to another without having

any result, even at times trying the effect on their own persons of all kinds of things that are of no avail, and leaving untried the sole treatment that would be helpful. I have seen a professor of medicine, a friend of mine, gradually sink under the application of mineral baths and drugs, whilst an extremely delicate lady of my acquaintance straightened her curved back so much in one year, by the use of the cold douche, that she was easily able to manage a considerable household.

"The douche is equally useful in cases of debility of the muscles and tendons, in consequence of a strain, sprain of the foot, strain after a fall, etc.

"In order to make the douche thoroughly effective, and at the same time to increase the patient's power of resistance by a momentary accumulation of warmth, it is sometimes applied immediately after the vapour compress,



Fig. 152. The Arm Douche.

and in that case the usual half or full bath is omitted. This is done especially in the case of people who cannot take the full bath on account of congestion, or some similar organic trouble, and who do not find the half-bath sufficient.

"This beneficial action of the douche is easily explained when we remember that the vapour compress loosens the tissues, especially in the skin and the neighbouring parts; dilates the capillaries — particularly if water is drunk at the same time; stimulates the action of the fine peripheral nerves, and in general throws the vital activity more towards the surface of the body. The subsequent douche does not simply check this tendency for a moment by the sudden

application of cold, but almost at the same time its strong action produces an equally strong reaction, which is the more permanent and beneficial in proportion to the time the patient can remain under the jet of cold water without feeling internal cold.

"This time varies, as a rule, from three to ten minutes. Only in exceptional cases is the douche taken for a longer or a shorter period; and the former only when it is applied to parts of the body . . . Before commencing local douches, it is necessary to do as in the case of general douches, that is to say, the head must be wet, and the jet of water allowed to play on all parts of the body, in order to make the surface less sensitive to the impact of the cold water. Separate parts of the body may be exposed to the cold stream for a period of ten to fifteen minutes, or even longer, according to circumstances. This is done especially in cases of white swelling and dislocation, particularly when, in the latter case, one has to deal with the presence of mercury, etc. The douche is also taken in cases of lead poisoning, when it is applied to the paralysed parts for ten to fifteen minutes. In cases of strictly nervous paralysis — that is, proceeding from the brain or spinal cord, i.e., in paralysis of the whole side (hemiplegia), or merely of the upper or the lower extremities (paraplegia) — the douche should rarely last more than five minutes, and careful attention should be paid to the patient's power of motion."

Thus writes Dr. Munde. I could not refrain from quoting this eminent and experienced water-physician at some length, in order to show the reader how much advantage may be derived from a prudent and intelligent use of the douche. On the other hand, a good deal of harm is done by using it wrongly and injudiciously; and as this frequently happened at the hands of ignorant doctors and laymen, the douche fell into discredit, whereas the fault really lay in those who had applied it wrongly, to the bodily injury of their fellow-men and of those committed to their charge. In the hands of an ignorant man the douche is certainly a dangerous instrument, but in the hands of an experienced practitioner it is a most valuable means of loosening, breaking up, and absorbing, through the humours, the morbid matter that has settled in the system; of removing obstructions and stoppages; and of softening and reducing indurations, swellings, and internal and external growths.

With regard to the duration of the douche in individual cases, and the frequency of repeating it, these must be carefully modified according to the constitution and disease of



the patient. In view of the enervated condition of modern civilized humanity, the directions we quoted above from Dr. Munde — who, moreover, gave them entirely in the spirit of Priessnitz — are valid even in the most exceptional cases. The principles which are laid down with regard to the use of the Kneipp lightning douche also apply equally to the present case. The shorter the application the more effective it is, and the longer the reaction lasts.

The douche is only used in the case of chronic disease, and then only in establishments for the water cure. If it were to find its way into the private house it would undoubtedly do more harm than good.

### 3. The Shower Bath.

To construct a shower bath apparatus, you must fit on to your douche pipe a mouthpiece like the rose of a watering can, with a round hollow top and a number of small holes in it, to allow the passage of the water. The bath that is taken under this modified douche is called a "shower bath."\*

The shower bath has only a very limited use in the system of water treatment. In the Roman-Irish baths, on the other hand, the shower bath is very much used for cooling after the perspiration. The finer the drops are that strike the skin — this is the case, for instance, in what is called the "pricking douche," in which the water is forced under a high pressure through the extremely fine openings in the rose — the more quickly does the skin redden, and in that the reaction consists.

In the Natural Curative Treatment the shower bath is taken at a temperature of 68° to 83° F., generally only for the purpose of flushing the perspiring surface of the body — after a sun bath or a vapour bath, for instance — before applying the cooling treatment proper (a body bath, for instance); or else it is taken, at a moderately lower temperature, after a warm slipper bath, in order to contract the expanded blood vessels, and so obviate the danger of catching cold.

The so-called domestic shower bath appliances for the

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\* The shower bath only differs from the rain bath in the degree of force with which the water strikes on the body. There is a greater pressure (seven to seventeen yards fall-pressure) on the water in a shower bath than in a rain bath (one to two yards fall-pressure). Hence the mechanical effect of the shower bath is greater than that of the rain bath.



purpose of cleansing the skin and hardening, have generally only done harm by being used indiscreetly and neglecting the simplest precautions before, during, and after the bath. As a rule, people remain much too long under the shower, or have the water too cold or too hot, and so cause an enervating instead of a bracing effect. Chills, nervous irritability, rheumatism, neuralgia, etc., are often the result of an injudicious use of the shower bath, and are generally caused by taking too much heat from the body during the bath, and not sufficiently warming it again afterwards. Hence, people would do well to cleanse the skin by washing at home, instead of keeping shower baths there.

#### 4. Downward Affusion for Special Parts.

These local downward affusions are more effective than the shower bath, and less exciting than the douche we described in No. 2.

In their complete form they are applied like the Kneipp affusion (p. 602 et. seq.). They are also useful when taking the half-bath (p. 519), and the cold wet massage (p. 458). They are then altered in temperature to suit the individual case.

So that I may, at the close of my explanation of the whole system of water treatment, also take into account the system of "scientific hydrotherapeutics," I shall quote its founder, Professor Winternitz, of Vienna, as to the effect of douches on the human organism.

"The peculiar features of shower baths, falling baths, and douches lie," he says, "in the manner and the force in and with which the water strikes the body. In this there is both a mechanical and a thermal force. The water flows continually off the surface of the body. The various particles are only in contact with it for a moment, but the thermal stimulus is continuous. Then there is the peculiar concussion and shock of falling water, which strikes the body in a more or less finely-divided condition. The specific advantages of the douche are to be sought in this combination of peculiar mechanical stimulus with a powerful thermal one. The peripheral terminations of the nerves, which have been made more sensitive by the sudden stimulus of cold, are exposed at the same time to the stimulus of the impact of a quantity of water, and they are peculiarly quickened by this double influence."

## 5. Retrospect and Supplement.

It is well, at the close of this section, to cast a comparative glance at the general methods of water treatment we have described.

With the exception of the full baths described in Sect. II, Chap. 2 (p. 515), in all kinds of water treatment a temperature is chosen that is either higher or lower than that of the body, in order to influence the organic processes in the interior of the body by the indirect stimulus — that is to say, by acting on the nervous system, the blood vessels, and the production and radiation of heat at the surface.

The different kinds of treatment differ less in the character of the effect produced — which generally only varies in degree — than in the special form and manner of bringing the water to bear on the system, or the way in which the thermal and mechanical stimuli are combined to produce a certain effect.

We know that a cold or cool application of water, in any form, increases, by its subsequent reaction, the flow of blood to the skin, and consequently its activity (respiration, exhalation, radiation and generation of heat, circulation, etc.), and acts beneficially (by stimulating the nerves) on the formation and circulation of the blood, nutrition, and metabolism. We know that the application of steam, or the use of hot water, has the same effect, with the important difference that, in this case, the reaction is either entirely wanting, or else is only brought about in a very different form from that which follows the application of cold water, and that no heat is taken from the body, but a good deal is added to it, during the process. Hence nearly every kind of water treatment may be more or less adapted to the individuality of the patient, his temperament, nervous irritability, etc., by a proportionate modification of the temperature of the water, the duration of its application, and the combination of the thermal with the mechanical stimulus.

Careful attention to individual needs in the application of the various forms of water treatment is indispensable. Routine or mechanical regularity in using them has always been severely punished, because the different kinds of treatment, although they may be all adapted to serve the same purpose, differ, nevertheless, very much in the strength of their effect; and a certain result that is desired can often be

attained more surely and rapidly by a different application of water, than by keeping to one single method and merely modifying it a little.

When one has to deal with delicate, nervous, poor-blooded, weakly patients, who can offer little resistance to cold water on account of the depression of their own internal heat, in other words, who have no power of reaction, one must be very careful to increase the small quantity of internal warmth by supplying artificial heat, and to awaken the drooping or slumbering force of reaction by gentle, brief, and cool stimulation. More thorough, longer, and cold applications must not be thought of until the patient has visibly gained in warmth and strength. And even then, this stronger treatment must always be in proper proportion to the degree of power of reaction that the patient has reached.

You begin with lukewarm washing, taking the patient out of bed in the morning, every day or every other day; then try a brief three-quarter wrapping, or a bed vapour bath, and pass on slowly to body, hip, foot, and hand baths; then "risk" a half-length bath, an air and light bath, etc., and thus you go on until you reach the limit of treatment which is prescribed by the vital force, constitution, age, and sex of the patient.

But although both great care and prudence are required in trying a treatment, we must protest, on the other hand, against turning the treatment into a kind of sport—preferring one thing to-day at such an hour, another thing to-morrow at another hour; at one time wantonly neglecting the applications, at another time strengthening and multiplying them in order to make up for lost time.

This is preposterous! With an advance-guard alone no battle is won. Anybody who thinks he can regain health by water treatment in an entirely agreeable fashion, without self-control and patience, had better not begin the treatment at all. "The water treatment requires resolution," said the late Dr. Priessnitz.

The water treatment must be no stronger and no longer than the individual case requires, for every treatment is an unnatural condition; but, on the other hand, it must be strong and effective enough to attain the end in view — to restore the lost health.

The diet during water treatment for the cure of chronic diseases should consist of good, plain, tastefully-prepared, well varied food — vegetable food and meat, but no coffee,

tea, wine, beer, spirits, or tobacco. Three meals a day should be enough. Fruit, either raw or cooked, and wholemeal bread, should be eaten at every meal. Those who can take milk should have it warmed a little, but not boiled, at breakfast and supper. Sour or thick milk is especially to be recommended for supper. Avoid all food that you know by experience does not agree with you. Some diseases — for instance, diabetes, certain complaints of the kidneys, bladder, and alimentary canal, etc. — often make it necessary to confine oneself mainly, if not exclusively, to a vegetable diet. In such cases, the choice of suitable food is best left to a physician of the natural school.

The layman often has a good deal of difficulty in dealing with crises. It needs a good deal of experience to know whether to allay the crisis that has happily arisen, by discontinuing the treatment, or whether a continuance of the treatment would perhaps make matters worse.

My readers must, therefore, always follow a middle course when in doubt. They must neither abandon the cure nor continue it at the same strength. If the crisis brings high fever, they must follow the method of treating fever which is given in the following section, and resume the treatment of the chronic complaint once more when the fever has disappeared, or modify it in accordance with the symptoms that appear after the fever. Eruptions, carbuncles, boils, or other swellings, that break out during a crisis, must be cured with stimulating and anti-inflammatory compresses. In such cases a mildly-relieving general treatment will be found to be the best.

Perspiring crises are most effectively supported and most quickly got over with bed vapour baths (No. 1 or No. 2), cane-chair vapour baths, etc.; urinary crises are moderated by drinking plenty of water, and any complaint of the bladder that may be present can be cured by the use of soothing hip baths, temperate body baths, or short massage hip baths. Parts of the body that are painful and heated may be treated with cooling compresses. Critical diarrhœa requires a lighter diet, rest, and stimulating body bandages. If the diarrhœa is complicated with pain and hemorrhage, it is well to take a cool "retained enema" (p. 566). Critical constipation — except the cases which occur during a lowering treatment (I. Chap. 29) — is cured with relaxing enemas.



## VI.

### Directions for the Treatment of Fever.

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#### I. Introductory.

I have already spoken very fully of the treatment of fever in Chap. 34, of the First Part, and I beg the reader first to note attentively once more what I have written there. In the following Chapters of this Part I shall complete the treatment of fever by the water system, which was only given in general terms in the earlier Chapter, by indicating the suitable treatment for the various grades and stages of fever. Naturally I am far from wishing to lead the reader into any cut and dried system of treatment. Attention to individual features is equally indispensable in chronic diseases, and in heated, feverish, acute conditions. The age, constitution, sex, form and degree of illness, will always determine modifications of one or other of the directions I give. There is, however, one fixed principle for every degree of fever and every individual: Never use absolutely cold water in any shape or form. As regards general treatment — that is, treatment of the whole body — the temperature of the water should never be below 68° F., and in local treatment, for relieving the congestion on the internal vital organs, it should not go below 61° F.\* In treatment for the purpose of warming, in which moist heat is artificially supplied to the system, the following fixed rule applies to every individual: Never try to force

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\* There is an exception in the case of torpid feverish conditions, of which we shall speak in Chap. 6.

perspiration, but merely prepare the way for it. The temperature of the body is taken with a fever thermometer. You will find further information about its use in Chap. 2, Part II. Fig. 153 shows a fever scale, which may be consulted in using a thermometer.

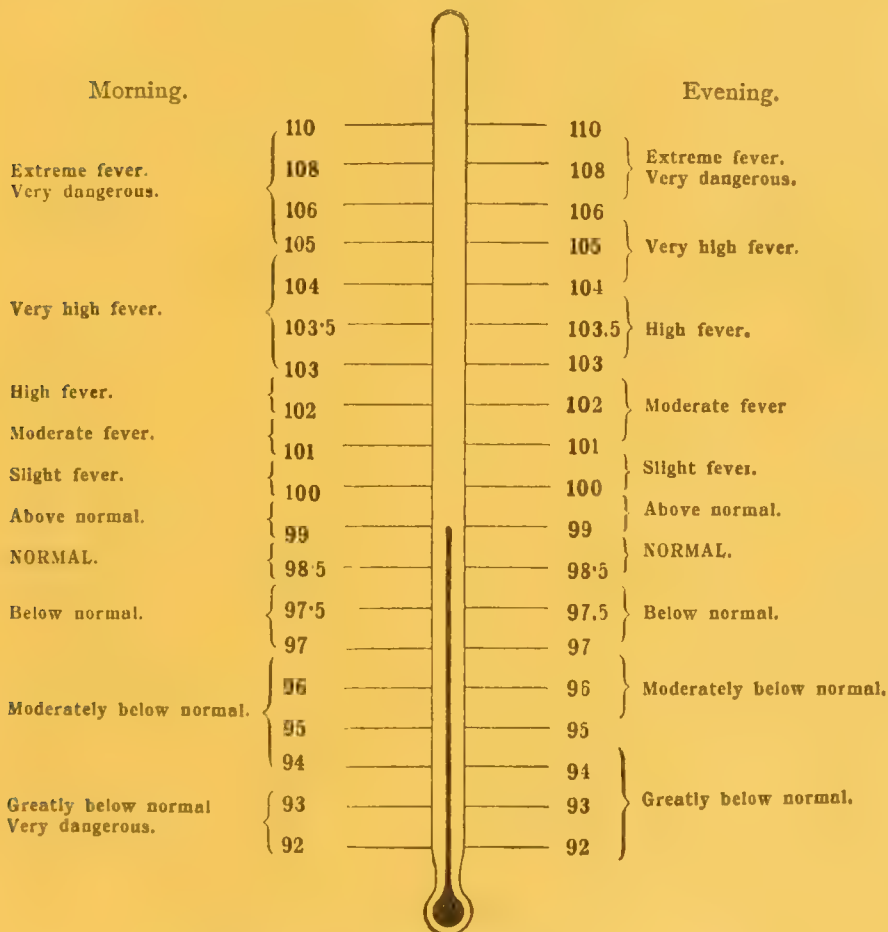


Fig. 153. Fever Scale (Fahrenheit).

As a quicker pulse also indicates excitement, that is to say, fever, the patient's pulse may also be felt in order to determine approximately the degree of fever. In a comparatively healthy man, the pulse has 60 to 70 beats a minute; in a comparatively healthy woman, 70 to 80; and in a comparatively healthy child, 80 to 90. Each beat of the pulse corresponds to a contraction of the heart, hence the beat of the pulse also indicates the beat of the heart.

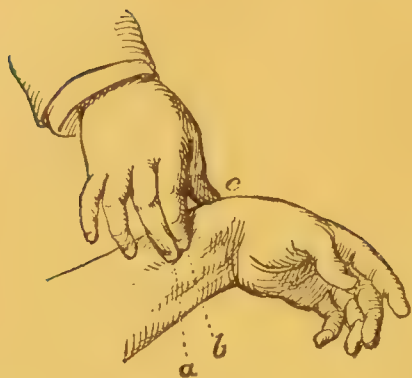


Fig. 154. Feeling the pulse. (a—b. The spots on the radial artery where the pulse is felt with the finger-tips of the right hand. c. The back of the left hand.)

The pulse is felt at what is called the radial artery, which lies at the surface on the inner side of the lower part of the arm, about a third of an inch above the joint of the hand that corresponds to the thumb (Fig. 154). But the pulse may also be felt at either side of the neck, the temples, &c. Further information about fever will be found in the Index. See also under "Directions for the Use of the Natural Curative Principles," and Chap. 19, Part I., p. 169.

## 2. Treatment up to a Temperature of 102° F.

A temperature of the blood of 102° F., both morning and evening, indicates slight or moderate fever. (See Fig. 153.)

The following means may be adopted to reduce the temperature of the blood:

1. A wash all over at 68° to 83° F. (p. 447), the patient to be dried afterwards, and given a stimulating body bandage at 72° to 77° F. (pp. 177, 488), and stimulating calf bandages at 66° to 74° F. (p. 506).

2. A soothing three-quarter length wrapping, or a wet shirt (p. 474), at a temperature of 73° to 77° F., to last three-quarters or one-and-a-half hours, or a soothing body bandage (p. 481 et seq.), together with stimulating calf bandages. To be followed by a wash at a temperature of 77° to 82° F.

3. Treatment. 1 and 2 alternately — that is to say, if new feverish symptoms arise, the patient may be treated either according to Course 1 and 2, or according to Course 2 and 1.

4. A bed vapour bath (No. 3 or No. 4, pp. 586, 587), especially in cases where the patient either feels cold, or shows a tendency to perspire, with a dry skin (first or third stage of fever). To be followed by a wash at 73° to 77° F.

5. A chair vapour bath (p. 580 et seq.), but only in what is called the cold stage of fever, in which the patient instinctively longs for a supply of heat. To be followed by a wash at

73° to 77° F., or a half-length bath at 84° to 88° F. (p. 180), or body bath at 77° to 82° F. (p. 528). The baths are given until the patient is quite cool. Afterwards he must be put to bed, and a warm bottle placed at the feet, and one under each hand (p. 584).

6. A half-length bath at 82° to 88° F. (p. 180), to last until the body is cool; then to bed. When in bed, stimulating body and calf bandages, and three hot bottles, at the lower parts of the legs and the feet (pp. 184, 584).

7. If the hands and feet are cold, a hand and foot vapour bath (p. 592), or a foot vapour bath (p. 590), to be followed by a wash all over with water at 73° to 77° F.; then to bed, with stimulating body and calf bandages.

Parts of the body that are particularly heated should be provided with cooling compresses, or soothing local bandages (p. 511 et seq.), which are to be at once replaced by fresh ones when they get warm. In giving a bath, one must never omit to apply a compress to the patient's head, and put a hot bottle to the feet, with bandages that also enfold the legs. If restlessness, heat, excitement, &c., again appear, whilst the patient is in a three-quarter length wrapping, it must be taken off at once, and the patient must be put into a fresh one, if his condition requires a continuance of the treatment. If there is an abatement of the fever after one or two applications, perhaps an outbreak of perspiration, the treatment must be abandoned, or else only a stimulating body or trunk bandage must be applied. If, on the other hand, the fever increases in violence, the patient must be treated as in the following number.

### 3. Treatment up to a Temperature of 104° F.

A temperature of the blood of 103° F. up to 104° F., in the morning, indicates high fever; a temperature of 103° to 105° F., in the evening, considerable fever. (See Fig. 153.)

1. Apply a soothing full-length wrapper (p. 468), with two wet cloths, at a temperature of 77° to 82° F., to be renewed at once if the patient shows further restlessness and heat. It may be necessary to apply three, four, or even more bandages in succession. Heated parts of the body should be provided with thick cooling compresses in the wrapper. When the last bandage is taken off, the patient



should have a wash at 77° F., or a half-bath at 82° to 88° F., or a body bath at 77° to 82° F. (For further particulars as to all these applications, see the Chapters that deal with them, and in the Index.)

In almost all cases it is well to apply an extra compress in the wrapper from the navel downwards, and to put a hot bottle, with a wet wrapper, to the feet, and not to enclose the feet in the wet cloths as well.

2. Bed vapour bath No. 2 (p. 585), or a wrap in hot herbs (p. 472), in cases where, in the "cold stage" of fever, the temperature of the body goes up to 104° F., to last one to one-and-a-half hours. The bed vapour bath to be followed by a wash, half-bath, or body bath; the herb wrapping to be followed by a sweat in bed.

3. Soothing three-quarter bandage (p. 475), with two or three wet cloths, or a soothing body bandage (p. 481), with stimulating calf bandages; to be followed by a wash all over at 77° to 81° F., a half-bath at 84° to 88° F., or a body bath at 77° to 81° F.

4. Half-bath at a temperature of 84° to 88° F., with continuous douches of the upper part of the body (p. 180); the bath to last until the patient feels cool at the armpits. The patient may be dried or not (p. 449). If he is not dried, he should be well covered up in bed. Two or three hours afterwards he should have a soothing three-quarter bandage, or a soothing full-length wrap.

5. Body bath at 82° to 84° F., or a friction hip bath at natural temperature (p. 525), either bath to last until the patient feels cool at the armpits. During the massage hip bath, cold water should be poured in and the warm water drawn off. After the baths the patient should be warmed again in bed. Put a hot bottle, with wet cover, at the feet, and a stimulating bandage on the abdomen (p. 491), and perhaps also stimulating calf bandages.

6. A wet shirt, as recommended by Kneipp (p. 474). It is recommended instead of the three-quarter wrapper, especially for children with fever.

7. People who are very ill, and who cannot move, or only with difficulty, should have a thick, soothing body bandage (p. 482), at a temperature of 77° to 82° F., and stimulating leg or calf bandages at 68° to 72° F.; the bandages to be followed by a wash at 82° F.

#### 4. Treatment at a Temperature above 104° F.

With regard to the different stages of fever above a temperature of 104° F., see, first, the fever-scale given in Fig. 153.

1. Soothing full-length wrapper (pp. 318, 468) with three or four wet cloths, at a temperature of 82° to 86° F. The feet are not to be inserted also in the wet bandage, but merely to be wrapped in the woollen blanket, together with hot bottles enclosed in wet covers. The wrapper is to be renewed as soon as the patient shows fresh signs of restlessness. To allay a high degree of fever, it often takes ten to fifteen full bandages in succession. When the last bandage has been taken off, the patient should be washed all over with water at 77° to 82° F.

2. Half-length bath at a temperature of 84° to 92° F. During the bath, draw off the warm water, and pour in fresh cold water, so as to keep it at a temperature of 84° to 92° F., the patient to be put to bed without being dried afterwards. The treatment to be repeated if the fever rises again.

3. Body bath at a temperature of 82° to 86° F. Renew the water continually during the bath. Put the patient to bed without drying, and apply soothing bandage to abdomen, and finally calf bandage, or bed vapour bath No. 4.

4. When warming the patient in bed afterwards, never omit to put hot bottles to the cold hands and feet. Take them away again as soon as the extremities are warmed. (See further, p. 601).

#### 5. Important General Observations on the Treatment of Fever.

Before commencing a course of treatment, I must ask you to read attentively Chaps. 19 and 34 of the First Part, and Chaps. 1 and 2 of the Second Part of this work, and also to look up further points about fever and its treatment, in the Index. The Chapter on fever should be studied whilst you are in health, so that you will be prepared when illness comes.

The directions given in the three preceding Chapters must not, of course, be taken as hard and fast rules. Individual features, and the special form of the disease, alone can

indicate the proper line for the treatment to take in actual cases.\* In many cases, for instance, treatment No. 1 may have to be applied instead of 2 and 3, or No. 2 instead of 1 and 3, or No. 3 instead of 1 and 2. There is only this one fixed rule: Patients with light ailments need water at a higher, and those with severer illness, water at a lower temperature. If the patient shows signs of restlessness, heat, and excitement again, he must be immediately taken out of the fever-allaying bandage and put into a fresh one, that should be ready at hand; he must also immediately be subjected to a suitable treatment, if fresh symptoms of fever come on while he is resting in bed, etc. I have already expressed myself so fully, definitely, and exhaustively in Secs I. and IV. of the Second Part of the work, on this and many other points relating to the treatment of fever, that it is superfluous for me to go into the matter again.

## 6. The Torpid State of Fever (Torpor).

The torpid stage of fever (from the Latin torpor = insensibility, lethargy, weakness), which is indicated by a sinking of the temperature of the body below the normal (Fig. 153), owing to the lack of vital warmth and the feebleness of all the vital functions, and arising particularly after long and exhaustive illness, loss of blood and humours (for instance, in cholera, typhus, etc.), has to be cured by the stimulating treatment. The torpor is, in most cases, accompanied by danger to life, hence it is necessary to quicken once more the half extinct vital force, the thoroughly depressed life of the nerves, and the interrupted functions of the skin, and to do this as quickly as possible. There is no better means of doing this than cold water, which may be applied in the form of a wash, massage, or a half-bath. As the sole object is to convert the torpor once more into a strong, wholesome, recuperative fever, the treatment may rightly be called a "fever-producing" treatment.

**First Treatment.** — When the temperature of the blood is not lower than  $96.8^{\circ}$  F., that is, in cases of mild torpor, one can often bring about a reaction by giving a quick wash all over at  $59^{\circ}$  to  $66^{\circ}$  F., with vigorous massage;

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\* The principles of the Natural Curative Treatment are that we should treat the patient, not his disease.

still, it is better to have recourse at once to a cold wet massage (p. 451), at a temperature of  $54^{\circ}$  to  $61^{\circ}$  F., which, as I said in the Chapter on the subject, can be modified according to the exigencies of the individual case. Subsequently it may also be useful to give over-douches. The friction over the wet towel must be discontinued when the first signs of warmth appear; the patient must then be put to bed, and have a stimulating body bandage and stimulating hand and foot bandages.\* The treatment may be repeated, after two or three hours. The chief point in this treatment is vigorous rubbing.

**Second Treatment.** — When the temperature falls below  $96.8^{\circ}$  F., it is also advisable to try the cold wet massage mentioned above, and in that case the water used should be as cold as the patient can stand it, and during the massage the patient, in a wet cloth, should be continually flushed with very cold water. Two strong people should take part in the rubbing, one taking the upper part of the body of the sitting or lying patient, and the other his legs and feet. If the patient is lying down, a large piece of waterproof should be spread under him, and he should be turned alternately on his breast and back. As soon as the body is fairly evenly warmed, the douche and the massage are discontinued, and the patient is put, without drying, into a dry wrapper (p. 514). In this he remains until his condition — that is, a return of the torpid state — makes it necessary to repeat the treatment. If the patient begins to perspire in the dry wrapper, he is saved. He should then have a full bath at  $88^{\circ}$  to  $90^{\circ}$  F., and the directions given on p. 325, for the General Strengthening Treatment, should then be followed as to his further treatment.

**Third Treatment.** — The patient is put in a half-length bath (p. 519), at a temperature of  $68^{\circ}$  to  $72^{\circ}$  F. The water should be about four or five inches deep in the bath. Whilst bathing, the patient is massaged by two strong people, and continually flushed with water at a temperature of  $63^{\circ}$  to  $68^{\circ}$  F. until the skin begins to redden. The patient is then put to bed, and given a dry wrapper (p. 514), if his hands and feet are warm, otherwise, bed vapour bath No. 2 (p. 585), but without wet cloths, that is to say, a dry wrapper with hot

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\* If the hands and feet are cold, you put to or under them hot bottles in wet wrappers, and at the same time apply stimulating bandages to the calves, lower parts of the arms and wrists.



bottles. If he perspires, he should be taken out of the blanket and given a wash at 77° to 82° F., or a full bath at 88° to 90° F.

If fever again appears as a result of the stimulating treatment, after one or other form of cure, the directions given in the preceding Chapters as to the treatment of fever must be followed.

As to fever-producing treatment for the cure of chronic diseases, see the "Lowering Treatment" (p. 305), Chap. 29, I.

## 7. Cases and Cures.

Old writings on the water treatment contain a number of instances in which fever patients often felt an irresistible, instinctive longing for a cooling or a cold stimulus, and they tell us that when this craving was gratified by a drink, or by getting out of bed for a time — that is, an air bath — or by leaping into a river or well, or even by dancing about in the snow, they recovered with astonishing rapidity.

The following case is given by a physician named Richter, in his "Exposition of the Allopathic, Homœopathic, and Hydro-dietetic Systems of Treatment," (p. 4): —

"A young man of twenty-four lay very ill of typhus for thirteen days, and the united efforts of two physicians had not succeeded in preventing him from falling so low as to make it necessary to give him the last sacraments. Whilst preparing for this, the patient awoke from the stupor in which he had lain all day long; suddenly sprang out of bed, as if in delirium, ran out into the street, and fell into the snow, which was a foot deep; and with this, in his efforts to recover consciousness, he came into close contact. They brought the patient to bed, wet through and shivering with cold, and the physician present declared there was now no hope of recovery, and that death was inevitable after such a chill. This assertion seemed only too well grounded to the bystanders, and as the patient went to sleep immediately, they thought there would be no awakening for him in this world. But lo and behold! the adventure had released the natural force of the patient (the energy of his nervous system), that had been rendered powerless by the medicinal stimulants and the hot room, from its bonds (by means of the cold stimulus), and given a new life to the streams of electric energy connected therewith; for in a short time beads of warm perspiration began to appear on his forehead, and the patient awoke, after a sleep of six or eight hours, perfectly cured. "Who would have thought it?" said the doctors and laity alike. Who can answer them? Certainly not the man who regards disease as a thing apart which can only be got out by means of drugs, like an ink-stain with oxalic acid; but those can answer who, by careful study of nature, have come to the conviction that organic nature possesses in itself all the forces and means which alone can safely cure disease, and that these forces are only set in motion when external influences are brought to bear on them without crushing and suppressing them."

Another case is found in the little work on "The Diet of the Sick," by Professor Mosler, M.D., of Greifswald: —

"In earlier years, the drinking of water was forbidden to nearly all invalids; people were so convinced that it was injurious, that they would see fever patients suffering the greatest torments of thirst without daring to wet their dry and burning tongue with a drop of water. Happily for suffering mankind, more rational and humane principles have gradually prevailed, since physiology has taught us that the whole metabolism of the human body, in health or disease, can only go on if it is well supplied with fluid. Hence the drinking of water is now allowed to patients, with few exceptions; in fact, the internal and external application of cold water has become one of the most important curative factors.

How much astonished a doctor who lived fifty years ago would be at the modern treatment of typhus, in which fresh water is given to the patient to drink, a thing which was almost forbidden, under penalty of death, in his time; if he were to see cold compresses applied to the burning brow of the patient, and even the whole body bathed in cold water, and all this borne by the patient without catching cold and without suppressing the morbid matter. The most remarkable instance, which I am certainly not recommending for imitation, but which clearly shows how little liable typhus patients are to catch cold by the skin, happened during my studies at Prague, in December, 1857. A typhus patient, who lived just by the Moldau, sprang from the third storey into the icy river, in the height of his fever, swam some distance, and was at last taken out near the island of Sophia, well dried, put to bed at once, and recovered soon afterwards. The history of the Russian campaign also affords many examples of this. During the retreat of the York regiment, in the winter of 1812-'13, according to the report of the medical officer, Dr. Krantz, 300 of the many patients with nervous fever which the First Infantry Regiment of East Prussia brought with it on straw, in waggons, were cured. Not a single one died on the march, and only thirty of them had to be put in hospital on the way. With reference to this incident, it has been proposed by a very enlightened physician, Dr. Gurlt, of Berlin, to convey typhus patients, who have been very numerous in the most recent campaigns, in light hammocks, in the trains to the distant hospitals. The stay in the open air, and the consequent continual renewal of the air, is more beneficial to these patients than crowding in hospitals in the immediate vicinity of the battle-field, which contributes more and more to the spread of the disease by giving out fresh contagious matter. In the last war a good deal was done by the Prussian military authorities in this direction. Even as regards the cold water treatment of typhus, several instances have shown that it is feasible even in apparently unfavourable conditions, and that it has good results. One of my assistants, Dr. Raabe, who often had occasion in my clinical practice to notice the successful results of the cold water treatment of typhus, wrote to me in 1866, from the field hospital at Köslin, where there were 10,000 Austrian prisoners of war in tents, that he had to treat 160 wounded and 100 cases of disease, including many of typhus, and that he let typhus patients bathe three times a day, for a quarter to half-an-hour, in the river Persante, that flowed round the camp, with excellent results."\*

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\* I have taken these two cases from the "Practical Manual of the Natural Curative Treatment" of Theodor Hahn.

### Further very Instructive Cases and Cures of Fever Patients, from Dr. Munde's "Hydro-therapeutics."

"After my return from Gräfenberg, in the winter of 1836-'37, there was a rather bad epidemic of scarlet fever raging at Freiberg, from which two of my own children were suffering, my eldest boy of about seven years, and the second boy between four and five. I began to apply cold bandages as soon as I noticed signs of illness in the eldest. As these were rather a novelty at the time, my wife, who was not yet converted to the new creed, became very anxious, under the influence of a medical friend, Dr. Beckert, now deceased, and neglected the bandages for twenty-four hours, in my inevitable absence, without telling me anything about it on my return. The next day the patient complained of great pain in the head, especially at the back, and of intolerable pains in the whole body. The exanthema (rash) that had shown itself had almost disappeared, what remained of it had a livid colour. All the symptoms pointed to a lapse into a nervous condition, with serious affection of the cerebellum, and my friend was so much frightened, that he prophesied, with great confidence, that the child would die within the next twenty-four hours. I, being a novice, had not much faith, and began to doubt the efficacy of the wet bandages, when I learned the departure from my prescription. It was mainly distrust of the old system of healing, to which six of my children had already been sacrificed, which gave me faith to persevere with the Priessnitz method in spite of the little experience I had then had. Moreover, the case was new to me. Such an affection of the brain had not happened in cases of scarlet fever at Gräfenberg, and I had to find a remedy myself, for the bandages gave scarcely any relief to the patient. As I knew the effect of hip baths in cases of trouble in the head, I began to think of these, and although such a bath was completely opposed to all the ideas of the time on the treatment of scarlet fever, and my wife and mother strongly opposed it, and my friend Beckert assured me I should "kill the patient," I put the child in a hip bath at about 65° F., covered him well with blankets, and applied a cold bandage to his head. I left him in the bath for a little over half-an-hour. It was impossible to rub him, as the slightest touch of any part of his body caused the most exquisite pain, hence I had also placed a folded sheet at the bottom of the bath. During the bath, his head was free from pain, and even the pains in the rest of his system were relieved. After the bath I wrapped him again in a wet sheet, and left him in it until the pains set in again. Then I gave him another hip bath, and so on alternately during the whole night, until at length the distressing symptoms disappeared in the morning. I had given the first hip bath about 5 o'clock in the evening, and at 11 the next morning, when Dr. B. prudently put his head in to see if the patient was dead yet, he found him walking about in the room with his clothes on, and without pain. The astonishment of my good friend may be imagined; he was more inclined to believe in a miracle than in the virtues of the water. In spite of the results before his eyes, he blamed me for my audacity. The child had no right to live! When my friend urgently begged me, even now, to give the child something, I could conscientiously reply, after the success I had attained, that I thought I could take the whole risk, and that, at its worst, it would be no greater evil for the child than for my first six children, who would perhaps all be living to-day, had I been to Gräfenberg sooner. After that I was considered a water fanatic, and was laughed at in spite of all my success. I did not, however, allow myself to be put off with words and a shrug of the shoulders, and when the pains returned towards evening, probably because the patient had been out of bed too long, and the exhalation



from the skin had been interrupted, I repeated the hip bath and the bandages until the pains again disappeared, and then applied the bandages twice a day, until the subsequent peeling process had nearly ended, without any great eruption, and on the tenth day after the clear indication of the disease, on a bright but cold winter's day, I sent him and his younger brother, who was taken with the epidemic two days afterwards, out into the street to pelt each other with snow. The bandages were then given once a day, and the first time they went out was after one of them. The younger boy had the disease in a light form, and whether it was that the simple diet and the daily cold wash had an influence on its duration, or whether it was shortened by the timely application of wet bandages, both boys recovered in a much shorter period than is generally the case.

Later on I noticed, in nearly all the cases I treated, that the patients were able to go out within ten to fourteen days. In summer I always allowed this on the tenth or the eleventh day. I do not remember, even in winter, ever keeping a scarlet fever patient to his room for more than three weeks. However, the patient must not remain too long in the open air, to begin with; and, as I said before, he must not be allowed to sit or stand about without exercise. Snowballing is very much better, however barbarous it may seem to a tender mother, etc.

One evening in February, 1851, a Canadian merchant came into my office at New York and complained of fever and sore throat. I looked into his mouth and felt his pulse, and advised him to return home and go to bed, as he most probably had scarlet fever. I visited him the next morning, and found him in a state of high fever, with much pain in the throat. As he had apartments in a lady's house, there was no male nurse available, and my own bath attendant was not handy, so I washed him myself, applied bandages to his neck and stomach, and told him to drink water and remain quietly in bed. I opened a window in the adjoining room, and directed his attendant not to keep the room at too high a temperature, and to give him fresh water to drink from time to time. In the evening the fever increased, and the next morning the eruption began to appear. At the same time the temperature and the pulse went up so high, that I considered it necessary to wrap him up. I had to do it myself, of course, and had to remain with him till it was all over. I renewed the cloth three times, and he then felt better, and the eruption increased with perspiration. In the evening I again gave him a couple of wrappings, and two more on the following day. The skin remained moist after the wrapping, the pain in the throat soon disappeared altogether, and on the tenth day he came to me, and we went down Broadway together in snowy weather, and had a partridge and other things at Sinclair's, afterwards continuing the walk for another half-hour. A couple of German doctors, to whom I told the case, exclaimed: "You are killing the man." To which I replied, with a laugh, that I would let them know when he died. Nevertheless, he did not suffer the slightest harm from this early excursion; on the contrary, he felt strong and well when he returned home, and he kept his health throughout the winter. I gave him two more wrappings, for the sake of precaution, and then sent him away cured. A few years afterwards he was on a visit to his brother in Quebec, and had occasion to tell him his experience of the water treatment for scarlet fever. A severe epidemic was raging, and one of the sons of the house was first attacked. Mr. D. wrapped him up at once, and although the disease broke out with all the violence it is capable of, he saved the life of the child (about fourteen years old) by continual bandaging. As, however, he was a little anxious about himself, being an old bachelor, and the proceedings had much



excited him, as it always does a novice, on account of the responsibility, he "made tracks," urging the parents to continue the treatment with the other children, who already showed symptoms of the contagion. The parents had not the courage to do so, and two dear little girls died under the care of a medical man. Mr. D. came to tell me of his heroism, and before his departure he had a visit from his brother and nephew, who were in great trouble! If the girls had only been wrapped in wet cloths during the crisis of the fever they would not have died, according to what I was told of the course of the disease. Mr. D. excused himself, when I reproached him, on the ground that he had all his relatives and two doctors against him, and was not strong enough to oppose them. "And if one of the children had died, what would have become of me?" he added. When I asked if his conscience felt quite secure, he shook his head and left me.

### Pyæmia.\* (Blood Poisoning.)

Pyæmia (from *πῦον*, = putrid matter, and *αἷμα*, = blood) is a dangerous torpid fever, caused by the absorption of purulent matter from inflammation, which carries off a number of lying-in women (after inflammation of the veins, or phlebitis), and of wounded people in the hospitals, etc. I have treated a number of cases, principally with wet wrappers, massage, and half-baths, and always been successful.

A certain Mr. Haven, of Florence, was caught by a circular saw in a saw-mill, and had his right hand fearfully torn. He was an unhealthy man, with a bad constitution, and as his physician, Dr. Walker, of Northampton, strongly objected to the use of water, the wound became extraordinarily inflamed, and suppurated badly. After a few days a sort of ague, with high fever, set in, and the patient fell so rapidly, that the family determined to send away the doctor, and begged me, as a last resource, to undertake the treatment. I immediately applied lukewarm bandages to the hand, gave him a number of lukewarm arm baths every day, in which the water was continually kept in motion near his hand by his son, in order to cleanse the wound; and as the fever continued, I had the patient wrapped in wet cloths once or twice a day, and by this means cured the fever within a few days. The patient made rapid progress under this treatment, and his hand was cured within six weeks. There were merely a couple of fingers that remained stiff.

Another case is that of my own wife. Being overturned in a sledge-accident, she had a miscarriage. On the first day all went well enough, and so she got up several times during the night, to look after a sick child, and caught cold. Inflammation of the veins now set in in both legs, and at last all the symptoms of pyæmia appeared, so that she was brought to the verge of the grave. As there happened to be a couple of foreign doctors with me, I held a consultation with them. One of them, a Swiss, recommended calomel, to which I refused to consent in the utterly exhausted condition of my dear patient; the other, a Spaniard, Dr. Acosta of Caracas, advised me to apply my own treatment, as he expected a good result for the typhus symptoms from a careful application of cold water. As this fell in with my own inclination, I immediately applied wet bandages, short at first and then longer, at 75° F., and in a few days she was out of danger. This fortunate cure was the means of saving a second life, and probably of more than one. Dr. Acosta told a mutual friend in New York what he had seen at Florence, and added: "If Dr. Munde cures his wife, I shall learn how to apply water in

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\* From Munde's "Hydro-therapeutics," p. 482.

my own practice." He doubted the recovery of my patient. When I wrote to him that my wife had been saved by the wrappers, he hastened at once to a hopeless case of typhus, had wet wrappings applied, and fortunately saved the patient.

It is greatly to be desired that they would use our treatment in the hospitals, for many a life would be saved.

Dr. Körner adds a few impressive words at the end of a treatise on an epidemic of nervous-typhus fever,\* in which he completely cured twenty-nine out of thirty-two patients by the Natural Curative Treatment. On Dr. Körner's own showing he lost three patients: a woman of thirty-five, who suffered from violent bloody diarrhœa in consequence of an emetic taken before her treatment, and died of paralysis of the abdominal nerves; a boy whose mother had applied warm bandages instead of cold, and who died of apoplexy of the brain; and a fisherman of forty-six, who was in wretched circumstances, and hanged himself in his convalescence. The fever of the twenty-nine patients who were cured reached an average temperature of  $104^{\circ}$  to  $105.8^{\circ}$  F., in the hot stage, and the pulse beat 120 to 130 times a minute.

Dr. Körner writes as follows:

"How different is the treatment of typhus by the Natural Curative Treatment and by the medical faculty? When wild delirium throws the patients into a state of the greatest distress and restlessness in the burning heat of their body, and they cannot be kept in bed in their ravings, and rest and sleep visit them neither day nor night, they become quiet as a rule, after the application of wet wrappers, and go to sleep; the burning heat subsides, the pulse slows down, respiration is more regular, the dry, scaly tongue becomes moist, the black coating of the lips and gums, and the sooty appearance of the nostrils soon disappear, so that the disease does not, under this treatment, reach a dangerous height, if one had the opportunity of treating it from the beginning, and preventing the typhus-poison from localising to its full intensity and extent. Whilst patients who have been medically treated crawl about on crutches like ghosts for many weeks of convalescence, thin as skeletons, bald-headed, hollow-cheeked and hollow-eyed, with swollen legs, those who have been cured by the Natural Treatment recover in a shorter time, so that they have all their old strength back after a few weeks, and, in fact, they are often healthier and stronger than they had been for a long time before the attack. The typhus patient, or any patient who is troubled with burning fever, seems to me, when he is under medical treatment, to be like one who has lost his way in the sandy deserts of the equatorial regions, devoid of all nourishment, tortured all day long by the broiling sun above and the hot sand below, in the greatest distress and unrest, so that at length, thoroughly exhausted, he gives way to despair, and, like a hunted beast, breaks up and dies, or makes a last great effort to collect what remains of his vital force, but can only continue the hopeless struggle for a short

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\* The title of the work, from which I quote the concluding part, is "The surest way of curing heating, feverish diseases, etc."

time; on the other hand, the one who is under the Natural Treatment, placed in an oasis, as it were, of comfort and refreshment, is far from presenting so pitiful a spectacle, and in a short time regains his strength without leaving any traces of the malady. Then there is the safety of the treatment to be considered, as a good result can always be anticipated if the circumstances are not too unfavourable, and all the conditions have been properly fulfilled; because the treatment is based on natural laws which do not deceive, if their tendency is rightly understood and followed up, so that one may venture to assert that every patient will be cured, if the circumstances are not too unfavourable. Then there is also a good deal of faith amongst the family of the patient, who do not find the physician shrugging his shoulders and shaking his head, and expressing diffidence about his treatment. Moreover, the physician is not required for so long a period for such patients as in the case of medical treatment, where he is often called, even during the night. The Natural Treatment physician does not need all this, as the natural healing force, on which he relies, makes steady progress towards recovery, and he has therefore few changes to make in his treatment.

"Thus, from this correct description of the results of Natural Treatment, it is easily seen to have the following advantages over drug treatment:

"1. More lives are saved by it than by medical treatment; in unfavourable cases, at the most four or five out of a hundred are lost, whereas, under medical treatment, according to Dr. Schönlein, more than 30 % of the favourable cases die. If we extend the calculation to 1,000 cases, we find that 330 die under medical treatment and 50 under dietetic; 280 more in the former case. When it is remembered how much often depends on the life of one man, seeing that so many are often plunged in misery by his death, one naturally wonders how it is that these systems, which have so many advantages, affording the quickest, surest, and most radical way of curing, have made so little headway in forty years, when they offer the greatest security against untimely death. It almost looks as if human life were of little value, seeing that people care more about everything else than about the means of keeping a man in health and enabling him to attain a ripe old age.

"2. It leads to a much more speedy recovery of health. As a rule, in severe cases, the patient is to be considered convalescent in the fourth week; and he then recovers with such startling rapidity, that he can attend to his business within a fortnight or three weeks. Whereas, those who have been medically treated, glide about like shadows for months, and, in fact, sometimes never recover their strength.

"3. It cures the disease thoroughly and effectually, so that the blood and the humours are cleansed of all morbid matter, and no after-diseases can arise; whereas, medically treated patients often die from these, months afterwards.

"4. It is cheaper, since it leads to recovery most rapidly, and cuts down the doctor's bills, without having any chemist's bills at all; moreover, any cottage is suitable for the treatment.

"5. It does not let the disease develop, if it is applied in time, as soon as the symptoms are noticed, but it cuts it short, as is clear from the nature of the treatment, which endeavours to purify the blood so as to prevent a localisation of the virus, and so cut short the growth of the disease.

"6. The cleanliness of the Natural Treatment is another consideration, especially in the case of patients who evacuate unconsciously in bed; this cleanliness is not found in the medical treatment, so that it gives rise to bed-sores.

"7. It is more comforting for the relatives of the patient. They do not find the doctor looking grave and shaking his head, and shrugging his shoulders, but confident about his treatment. They frequently see the very opposite of what happens when the patient is under medical care — consultation after consultation is held, one physic after another is tried, all which must fill the unfortunate relatives with care and anxiety.

"In the face of such brilliant results, all doubt and hesitation must be set aside as to which is the preferable treatment; and we owe all these blessings to something that has been ridiculed, persecuted and slandered, and the merits of which people still hesitate to recognise after a period of fifty years."

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## VII.

### Massage and its Use.

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#### 1. Historical.

Scarcely any other remedy in the whole art of healing can boast of such an antiquity, and scarcely any has become so popular and won such general recognition as "massage."

Even in the remotest times massage was in use amongst the uncivilized races of Africa and America. It was regarded as a universal remedy, a panacea, to which uncivilized man had recourse in all his difficulties. This ought not to astonish us so much, as "uncivilized" man has few remedies, and no instrument but the hand, which he instinctively uses for relieving his pain. We ourselves, when we feel pain from some cause or other — a blow, cut, fall, etc. — instinctively put our hand to the part affected, for the purpose of rubbing or pressing it — in other words, to massage it. In China and India also, the art of massage was held in high esteem in ancient times. It was practised by the priests, or in healing institutes, which served for this specific purpose. The ancient Greeks and Romans, too, had a great regard for it as a valuable method of healing, and combined it carefully with hot air baths, our modern Roman-Irish baths, after which the bather was kneaded over the whole body, and then rubbed with perfumed oil. We find, from the "scientific" treatises of the ancient physicians, that they fully appreciated the value of the kneading cure. Herodicus and Democritus, two famous Greek physicians, recommended a natural curative treatment, grounded on systematic exercise



and diet; and Hippocrates, the ancient father of medicine, who completed the teaching of the two, required a knowledge of massage of the physician of the period. Hippocrates knew of the beneficial action of massage on diseased joints, and expressly stated, in one of his writings, that a stiff joint may be loosened by kneading, pressing, and stroking, and that a relaxed joint may be strengthened and stiffened by the same process. The ancient Greeks — in this they were by no means behind the present age, with their masseurs and masseuses — had their masseurs, to rub, knead, and press patients, and make their limbs “crack.”

From the East, where massage is an integral part of the Turkish bath, down to the present day, massage was brought to the West by the crusaders: here, however, it was not regarded as a remedy, but as a prophylactic, a means of preserving health, bodily strength, activity, and beauty. It gradually passed from the hands of the physician to those of the bath attendants, who, with their keen commercial sense, soon succeeded in discrediting so excellent a remedy; and so it came to pass that — the physicians having abandoned it — in the Middle Ages massage was only practised, in a crude form, by shepherds and old women.

It was not until about the end of the Sixteenth century that a French physician, named Paré, succeeded in rehabilitating massage to some extent, but it did not find a solid foundation until much later, when a system of practical treatment was formed by means of the knowledge of the physiological processes in the human body and on the basis of anatomical study.

Dr. Mezger, of Amsterdam, has the chief credit of putting massage on a sound physiological foundation, and building it into a solid system. Since this famous massage physician effected his sensational cures, and princes and high personalities recovered under his skilful hands from serious ailments, that had defied “scientific” treatment, massage — or the art of curing a number of diseases by systematic stroking, rubbing, kneading, pinching, pressing, pushing, poking, beating, slapping, hacking, and shaking — has become a branch of “modern medicine.” There are nowadays a number of physicians and expert laymen who practise this art with skill and success. The continued erection of hygienic-gymnastic and mechanico-therapeutical institutes, the place which is now given to massage in the universities and

hospitals, and the great interest which is taken in it by the public, afford a striking proof of the success achieved by the massage treatment. We do not hesitate for a moment to say that this treatment, together with other processes of the Natural Treatment, is an important factor in the system of the natural cure of disease.

## 2. The Physiological Effect of and the Indication for Massage.

If we wish to understand the effect of mechanical treatment on the human organism, we must first of all consider the working of the organ which is immediately affected by the action of the hands. This organ is the surface of the body, or the skin. Its many functions are already sufficiently familiar to the reader from earlier Chapters. As to the anatomical structure of the skin, see p. 151, et seq.

The first effect of massage is purely mechanical — it consists in the removal of the fat that has oozed out, and the cast cells of the epidermis. The skin is cleaned by the removal of the dead cells of the epidermis, and becomes softer, more tender, and more elastic; the secretions of the sebaceous and sudoriferous glands are increased; the absorption of oxygen and rejection of carbonic acid are promoted — in a word, the physiological properties of the skin are intensified. At the same time, the fine endings of the nerves which are in the skin are wholesomely stimulated by the mechanical action; the circulation of blood in the skin is accelerated; the nutritive process is brisker, the excretion is increased, and, as a consequence, the other excretory organs (lungs, kidneys, etc.) are considerably relieved. All this is already familiar to the reader.

In the second place, the effect of the various kinds of massage extends to another important apparatus in our system — the muscles. Each muscle, like every other organ, is subject to the laws of metabolism (p. 125); and the waste matter, or products of combustion, which accumulate in the muscles when they are active, and cause the condition of fatigue, have to be removed, as they offer a resistance to the contractions of the muscles. This happens by both the blood and the lymph streams carrying away the used-up matter, and supplying fresh in their place. The nourishment of the

muscles, which is accomplished in this way, is promoted by the action of massage, which quickly drives the used-up matter into the circulation, and facilitates the supply of new material.

In consequence of the gentle contractions of the muscles which take place in the various manipulations of massage, they are more richly supplied with blood. I shall have more to say about this in a later Chapter on "Hygienic Gymnastics."

Although the action of massage on local metabolic processes is very great, as we have seen with regard to the skin and the muscles, its beneficial influence in the entire renewal of substance is still more important. The circulation of the blood and humours is very greatly stimulated by massage, especially what are called the centripetal movements of stroking and kneading — those which are directed towards the centre, the heart — cause a brisker circulation of the venous blood and the lymph in the lymphatic vessels, and thus considerably increase the renewal of substance. Not only is the waste product of the tissues, effects of fatigue and combustion, etc., carried away, but fresh building material has to take their place, since the humours that have been massaged away are prevented from returning to the periphery by the valves, which only open towards the heart.

The parts of the skin that are treated redden under the mechanical action of the massage, as the stimulus acts both mechanically and thermally in the blood vessels of the skin. This effect is then extended, by reflex action, to other invisible vessels, which are similarly dilated, and receive a rich supply of blood. Thus, at length, the heart and its function are indirectly influenced by the purely mechanical action of the massage on the surface of the body, for, amongst other things, we always notice an acceleration of the pulse after massage treatment — a proof of an improved circulation, which, in its turn, leads to a brisker motion of the humours.

We have now given a brief explanation of the effect of mechanico-therapeutics on the life of the blood and the humours, and on the entire process of metabolism, and, if we bear in mind the only correct theory of disease — that diseases are caused by a defect in the renewal of substance, a modification of the normal proportions of the living substance of the body, a corruption of the blood and humours,

and the deposit of foreign and morbid matter in the system, it will be clear to us also that massage is capable of rendering much service in the cure of diseases which may be traced to the above causes.

If we succeed with the help of massage — by quickening the current of the blood and the humours — in preventing the formation of new growths or discharges (which always depend on a corruption of the humours), in the event of the inflammation of any tissue or organ, we shall also find it possible to break up and absorb any growths or discharges, such as tumours, proud flesh, indurations, granulations, cysts, polypi, papillæ, swellings, condylomata, emphysemata, etc., which may already exist.

The lymphatic vessels terminate in all the tissues in capillaries, or openings as fine as hairs. These absorb and remove the lymph produced by the blood, or exuded through the walls of the blood vessels. By the action of massage — stroking, kneading, pressing, etc., the lymph — which is obstructed when there is inflammation — is forced into the capillaries, and then further removed by continuing the stroking. A new growth, which always begins in the form of inflammation, can only be reduced, that is, broken up and prepared for reabsorption, by causing a fresh inflammation (crisis), with all its symptoms. The blood vessels are partially torn by the mechanical action; this prevents them from being supplied with further nourishment, and consequently leads to their entire extinction. The morbid matter present is spread over a larger surface, over neighbouring parts of the system, by means of rubbing, kneading, pressing, etc., and thus a greater number of lymph capillaries are engaged in the work of absorbing it. Through the breaking up of the morbid discharge, moreover, there is less pressure of the foreign matter on the sensory nerves of the inflamed tissues, hence a lessening or a cessation of the pain is the pleasant result of a skilful and judicious application of massage.

To resume: the different points in the effect of massage are, a stimulation of the functions of all the organs of the body, especially the skin, nerves, muscles, and glands; an acceleration of the circulation of the blood, and lymphatic absorption; an increased motion of the venous blood; a reduction of local inflammation; the prevention of discharges, and the breaking up and absorption of existing external or internal growths.



### 3. The Technique of Massage — General Directions.

Not everyone is adapted to undertake massage. A good masseur must have, besides a certain amount of bodily strength, a soft, supple hand, and a number of mental qualities, such as perseverance, assiduity, force of will, and patience, because massage is an exacting and fatiguing work, and requires considerable physical strength, especially in administering what is called general massage, in which the whole body is treated, from head to foot. If several patients are to be treated in succession, as is usually the case in massage establishments, the masseur needs not merely strength, but strength that will last. In order to economise his strength, he should place the patient, or the part to be massaged, in the most convenient position for the best possible use of his hands.

The interest of the patient also demands a convenient position, so that he may not get tired or lose his patience. For that excellent quality, patience, is the more necessary in massage treatment, as it is generally a question of curing chronic, long-standing ailments. Such complaints cannot be cured with a turn of the hand.

The patient should also see that he is treated by a healthy and sympathetic masseur. This point is not sufficiently considered, or it is not sufficiently known, that when the body of a patient is manually treated with full energy and an intense application of the will of the masseur, along with the massage, there is additionally a curative action of the vital magnetism or electricity. The correct application of the kneading treatment is not of itself sufficient; in massage, as in the case of magnetic treatment, there must be a magnetic relation, a bond of sympathy between the masseur and the patient, if the treatment is to be successful. It is on this account that one masseur is more successful than another; the one possesses more magnetic force than the other. The correct, skilful, mechanical action — the kneading, rubbing, stroking, pressing, etc., of the diseased body, or certain parts of it — is, as I said, not the only thing that is needed for success. One masseur, for instance, succeeds in curing after one or only a few sittings, whilst another takes a long time, or even may not succeed at all, although both may be equally clever at their business. Even Dr. Mezger, of

Amsterdam, the famous massage-physician of whom I spoke in a previous Chapter, who, amongst other notabilities, treated and cured the Empress of Austria, probably has, without knowing it, a strong curative magnetic force. And the wellknown masseuse of Breslau, who cured the late Empress Augusta of Germany, had undoubtedly a magnetic effect in her stroking treatment. (See further, under "Magnetism," in the Index.)

It is advisable for the masseur to grease or oil his hands, or the parts to be massaged, before commencing operations. Any ordinary kind of fat or oil (vaseline, lanoline, olive oil, etc.) will do for the purpose. After being greased, the hands glide more smoothly and softly over the skin, which is also made softer and more supple. However, it is advisable to omit this greasing for a certain form of manual treatment, namely, when there is question of what are called "stationary" processes (pressing, pinching, pounding, hacking, vibrating, and beating). The fingers would be always slipping off the skin in this form of massage, and so no effect would be produced. Also, when only a purely mechanical, thermal, or reflex action is intended, or only a better circulation in the skin is wanted, there should be no greasing either of the hands or of the part to be massaged. It is also omitted when you want to act through the skin on internal, deeper-lying organs (for instance, the eye, womb, etc.). On the other hand, the greasing is always advisable for what are called the "progressive" processes (stroking, rubbing, and kneading). Also, when larger portions of the body are to be treated, the greasing is to be recommended.

The finger-nails of the masseur should be cut rather short, because long nails scratch and hurt the patient.

Massage is particularly effective shortly after a vapour bath, or a cool slipper bath. The skin has been made smooth and supple by the bath, the pores are opened, the circulation of the blood at the skin is accelerated, the sensitiveness of the nerves is increased, in a word, there is no more favourable opportunity for massage than after a bath. It is also to be recommended in a full-length bath at a moderate temperature (91° to 93° F.).

It is not advisable to give fixed rules for the duration of the different processes of massage. The time of each sitting must be determined according to the amount of effect desired, the size of the part to be treated, the form and severity of the illness, and the age, sex, and constitution of

the patient. For dry massage, three to four minutes is enough, as a rule, as the epidermis becomes too thin if the mechanical action is too long and too vigorous, and thus raw places may be caused which will interfere with the progress of the cure. In case the hands of the masseur or the skin of the patient is greased, the sitting may, as a rule, extend to ten minutes.

It is also impossible to give general directions as to the physical force or the strength which is to be put into the stroking, rubbing, kneading, pressing, or pushing. In every case beware of doing too much. There are masseurs who wrongly suppose that they can act more quickly on the healing process by what they call a vigorous treatment, and they are filled with an inner satisfaction when their victim has had a severe drilling. This is preposterous. As in the case of every other curative treatment, that proposes merely to beneficially hasten the natural healing force, so in the massage treatment, the power of reaction of the organism must be stimulated, but the reaction itself must not be forced. Hence the massage must be energetic and decided, but at the same time gentle and soft, and the patient must not be "maltreated" — an idea which Father Kneipp seems to have with regard to the massage treatment, for he rejects it root and branch. Especially in fresh cases, where you have growths, indurations, and swellings to bring down that are not of long standing, a better result is obtained by delicate, soft, and elastic touches than by forced rubbing and pressure. Even Hippocrates prescribed that "friction with the hand must be gentle."

In most cases of illness it is not well to commence the massage treatment at once in the part that is diseased, but to begin by massage of the apparently healthy tissues surrounding the inflammation or new growth, which lie towards the centre. As a rule these are also diseased, and so must be treated first, in order to clear the lymphatic canals that are stopped up with the products of inflammation. Hence, in all cases, the treatment should begin with the apparently sound parts that lie towards the centre — for instance, in the case of a diseased elbow, one should begin with the upper arm above the joint; in the case of bad knee, begin with the thigh at the upper edge of the knee-cap, and proceed upwards from there towards the centre of the circulation, the heart, etc.

The variety of different processes in the mechanical treatment is very large. There is a special name for every smallest modification of the chief manipulation. They talk, not only of stroking, rubbing, kneading and pounding, but of drawing, pressing, beating, hacking, slapping, pushing, poking, squeezing, stretching, sawing, shaking, pinching, sticking, etc. Hence Professor Rossbach rightly says, in his manual of the Physical Curative Treatment:

“As is clear from the physiological point of view, it is really simply a question of driving blood, lymph, and exuded matter from the periphery towards the centre; consequently stroking, rubbing, kneading and pounding are sufficient to obtain all that can be done by this method. The ingenious inventors of new subsidiary methods should be politely requested to keep their discoveries to themselves.”

The various processes of massage treatment are sometimes used alone, sometimes in combination. We will describe in the following Chapters how they are to be united or applied successively at a sitting.

As I said above, in speaking of the necessity for using fat, the mechanical processes are of two kinds — “stationary” and “progressive.” The former are confined to one part of the body, where they are repeated; the others shift about from one part of the diseased member to another. The stationary processes, which can be best conceived as a shock given to a solid body, and the propagation of the shock through the body, have an indirect physiological action on the human organism. The progressive processes, which may be compared to the movement of a snake, have a direct effect, and we shall treat first of these in the following Chapters.

#### 4. Stroking.

Stroking, or *effleurage* (or *friction douce*, as the French call it), is applied, according to the position or shape of the member to be treated, with the tips of the fingers, with the flat side of one or of several fingers, with the palm of one or of both hands, or with one or both hands laid flat on in such a way that the hand or fingers laid on glide softly in the direction of the lymph current over the part to be treated.

The stroking is always done towards the centre of the circulation, or centripetally, as I said in the previous Chapter.



Hence you stroke from the feet up the legs, and from the hands up the arms. The stroking of the arm is illustrated in Figs. 155 and 156. (See further, under "Arm" and "Leg," and under "Full Massage.")

The member which is to be treated must be first raised up, or at least placed horizontally, and well supported, and

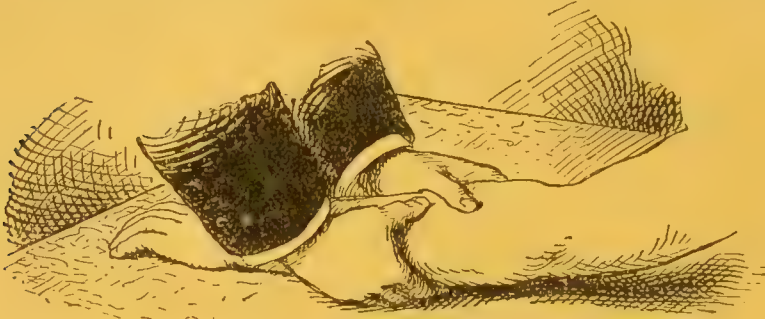


Fig. 155. Stroking the fore-arm.

care must be taken especially that its muscles are at rest. Figs. 157 and 158 make this clear. (See further, under "Abdominal," "Breast," and "Back Massage.")



Fig. 156. Stroking the fore-arm.

In the stroking, particular care must be taken that the hands follow the outline of the member in question, and lay most pressure in the direction of the lymphatic canals and the veins. The pressure of the hand varies from the lightest touch to a vigorous stroke with the other hand laid on top.

Remains of the products of exudation, such as tubercles, etc., or glands which are found between the muscles and tendons, are massaged with the thumb pressed deep into the

tissues, or with several fingers. The finger tips are laid almost vertically on the part in question in this process, and are

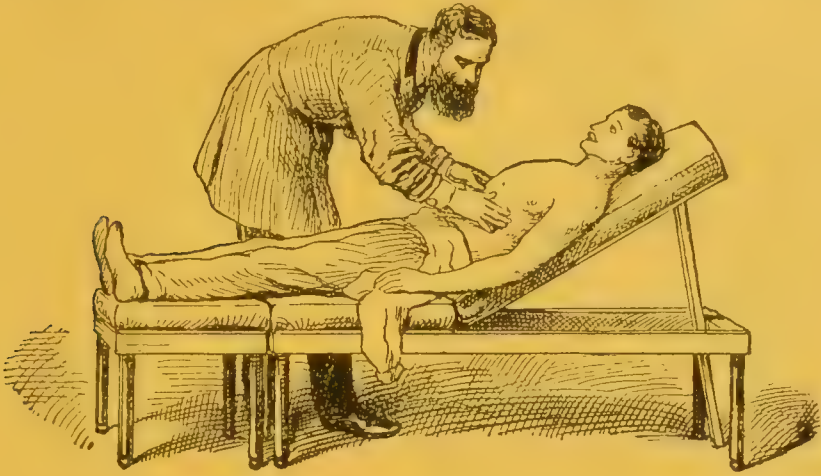


Fig. 157. Stroking the Stomach.

slowly pushed forward over the induration, whilst one or more fingers press into the tissue.

Small surfaces of the body, or portions of the skin, underneath which there is a bone, must only be massaged with the flat of the thumb, or of both thumbs, and very gently (Fig. 186). On the other hand, parts that are rich in muscle are mainly stroked with the ball of the thumb and of the little finger. In that case it is best for masseur and patient to take up a position in which the pressure of the



Fig. 158. Stroking the Kidneys.

hand is strengthened by the weight of the upper part of the body of the masseur (Fig. 158). Surfaces which are small,

the cheeks, for instance, are stroked in a circle. In this manipulation the fingers rest on the chin whilst the eminences of the hands stroke the cheeks all over in a circular direction.

Though there can be no doubt as to the direction of the stroking at the extremities — it must always be centripetal, towards the heart — it is otherwise with the back.



Fig. 159. Stroking the Back upwards.

that the "water-way" is always in the middle of the back, and that the current of lymph finds its way from here upwards towards the clavicle (collar-bone), and downwards



Fig. 160. Stroking the back downwards.

towards the inguinal region. Hence, in order to stroke out the lymph in the upper part of the back, the hands are placed in such a way that the thumbs rest on the spinal column, and the fingers, rather close together, lie on either side of the back (Fig. 159). You then stroke upwards as far as the neck, ending the process under the chin at both sides of the neck. During the manipulation it is advisable to pass the hands out towards the armpits a few times. In order to treat the lower lymphatic region of the back, the hands are placed in such a way that the thumbs touch each other on the spinal column. The other fingers close in the outer surface of the back (Fig. 160). When the pass reaches the loins or buttocks, it turns a little towards the front, in the direction of the groin, where the effleurage

Medical experts are not yet agreed as to the direction of the lymph circulation in the back. It has always been found, however, on the outbreak of abscesses,

towards the inguinal region. Hence, in order to stroke out the lymph in the upper part of the back, the hands are placed in such a way that the thumbs rest on the spinal column, and the fingers, rather close together, lie on either side of the back (Fig. 159).

You then stroke up-

ends. In order to press in deeper between the various bundles of muscle, what is called the "comb-grip" (Fig. 161) is used. The fists are put together, and in order to connect them well, the left thumb is held in the right fist, or vice versa. The comb-grip, therefore, is a sort of transition to "kneading."



Fig. 161. The Comb-grip.

## 5. Rubbing.

Rubbing (*massage à friction*) is a special kind of stroking. To stroke quickly and rapidly is to rub. One hand, both hands (Fig. 162), or only parts of the hand, such as the fingers, palms, etc., may be used for rubbing, according to the size and position of the member to be treated. Rubbing is in most cases combined with stroking, as both methods

are useful when there is question of breaking up and absorbing exudations or growths, or where it is required to increase the circulation of blood and generation of heat as quickly as possible at the skin. When it is a case of doing away with indurations, swellings, etc., one hand, or one or several fingers, are used for

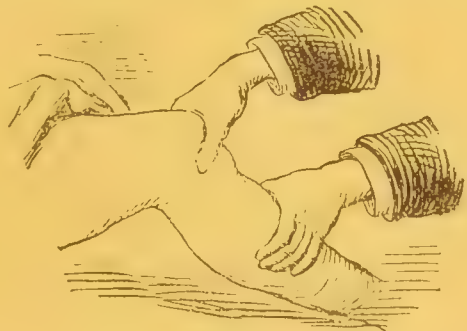


Fig. 162. Rubbing the Leg.

rubbing in a circle round the diseased part, and the other hand is used to stroke the apparently sound tissue about the diseased part, in a direction away from the evil.

In thus combining the action of the two hands, you remove with the one the morbid deposit that the rubbing hand has broken up (Fig. 163).

Dr. Reibmayr writes as follows, under the title of "*Massage à friction*":

"It is just as difficult to describe this manipulation as to represent it pictorially.

"It consists in vigorous circular friction with the hand, especially with the tips of the fingers, alternating with strong



centripetal stroking with the same or the other hand. In the case of smaller members, the first joint of the thumb is used for the purpose\*. The limb is grasped and used as a fulcrum



Fig. 163. Circular Rubbing in a case of Chronic Inflammation of the Knee-joint.

by the other fingers of the hand, or of both hands.

As it is the object of this treatment to squeeze out morbid products, so as to break them up in the surrounding healthy tissue, you must always begin at the edge of the diseased

tissue, and not be particular about the direction to press the squeezed-out matter, as long as it is healthy tissue. This direction may even be centrifugal,\*\* if the healthy tissue is nearer this way, only the massage à friction must always close with centripetal stroking.”

## 6. Kneading.

Kneading (*pétrissage*) consists in an irregular pressure with the whole hand, or with separate fingers, or a more or less vigorous squeezing of the skin and the muscles. When both hands are used, the soft part, or the tissue or muscle, is raised with the outstretched fingers — the thumb on one side, the fingers on the other — and moved backwards and forwards, being pressed, kneaded, and pounded all the time (Fig. 164). The kneading, which is sometimes confined to a small surface of the body, and sometimes extended to a larger member, can only be properly performed in those

\* See Fig. 163.

\*\* That is to say, away from the centre, as opposed to “centripetal,” which means towards the centre.

parts of the body where it is possible to grasp certain tissues and lift them up above the underlying parts, especially, therefore, at the arms and legs (Figs. 165 and 166). It is difficult to perform the manipulation in other parts of the system, though an experienced and clever masseur may succeed in grasping and raising muscles which would immediately slip out of the hand of the inexperienced.

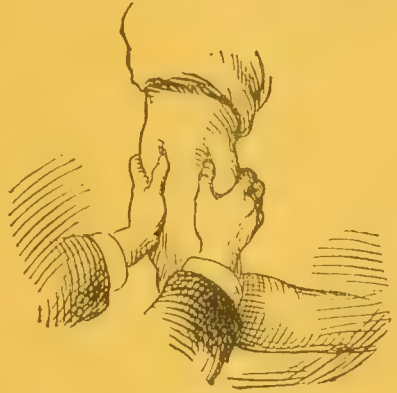


Fig. 164. Kneading the Upper Arm.

The grip necessary in pétrissage may, however, be modified in two ways. The kneading or pressing is either done with the thumb and the tips of the four fingers, which work like pincers,

or else the thumb and the four

fingers work with the palms and the last joints. In pressing, the fingers must be kept close together (Fig. 164), and must work the soft part as if they were kneading dough, or

squeezing a sponge which is continually absorbing water.



Fig. 165. Kneading the Thigh.

## 7. Pounding.

This is a similar but less effective massage process than the one described in the preceding Chapter. It is done with the palms of both hands, and must be done rapidly. The chief effect consists in the stretching of the various muscles,

tendons, nerves, etc., by moving them backwards and forwards. The effect of pressure is a secondary consideration.



Fig. 166. Kneading the Calf.

Fig. 167 shows the pounding of the upper part of the arm, and Fig. 168 the pounding and kneading of the abdomen. (See further under "Arm," and under "Massage of the Abdomen.")

## 8. Pinching.

Pinching, together with the manipulations described in the subsequent Chapters, belongs to the category of "stationary" processes,

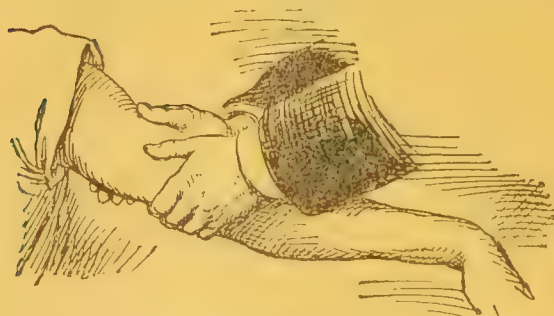


Fig. 167. Pounding the Upper Arm.

whereas we have been occupied with the "progressive" processes in the preceding Chapters. The grip is familiar enough to the reader. Who has not sometimes pinched, or been pinched? This manipulation is one of the most effective where anatomical conditions admit of it, that is to say, where there are tissues that can be grasped in this way.

There are two ways of applying the "pinching." Either the thumb on one side and the four fingers on the other

form the two arms of a pair of pincers, which are applied vertically to the part to be massaged (Figs. 169 and 170), or else the thumb and the four fingers do not work with the tips, but



Fig. 168. Pounding and Kneading the Abdomen.

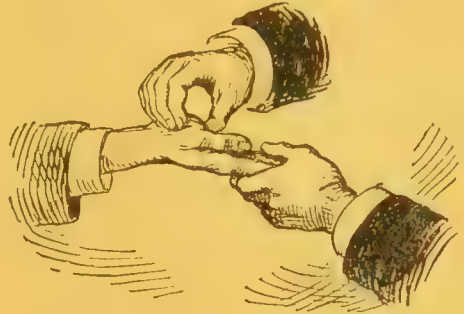


Fig. 169. Pinching the Ball of the Thumb.

with the balls or fleshy parts of the lowest joints (Fig. 171). The first grip (Figs. 169 and 170) is more effective than the second (Fig. 171), but both belong to the class of processes already described, or to be described, which are most fatiguing for the masseur; they require well-developed muscles in the fingers, and especially a powerful thumb.

## 9. Squeezing.

This is a similar process to pinching. In pinching, the thumb and fingers work together from either side, whereas in squeezing the thumb alone is active, and the fingers remain passive, or serve merely as a fulcrum or support. The thumb, directed vertically towards the part to be treated, works with the ball of the first joint, and presses the exudation or growth rapidly backwards and forwards.



Fig. 170. Pinching the Shoulder.



## 10. Pressing.

Pressing also, which is a familiar practice to every reader in the course of daily life — for who has not

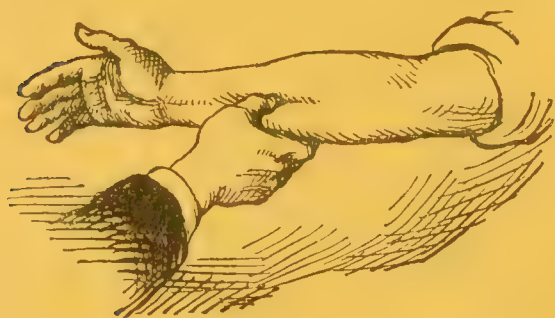


Fig. 171. Pinching the lower part of the Arm.

one, two (Fig. 172), or three fingers. The little finger, which is nearly half-an-inch shorter than the ring finger, is only



Fig. 172. Pressing with two Finger Tips.

“pressed,” or been pressed by some “tender hand”? — has become an important massage manipulation.

It may be done in many ways. According to the size of the part to be massaged and the degree of pressure that one wants to apply, the pressing is done with

apparently working. Besides, the little force it has is useless. The index finger, however, being little shorter than the middle finger, is easily accommodated to this and the ring finger. The thumb works best of all, on account of its shortness, and strength and muscle. In the case of sensitive patients, it is best not to press with the finger tips, but with the two first joints of the index finger joined together (Fig. 173).

But we may also use the two first joints of two, three, or four fingers (Fig. 174), joined together for this manipulation. The pressure is strengthened by working with the lowest (third) joints of the four fingers (thus forming a fist), and is still more effective if the knuckles are used (Fig. 175).

The pressing may be done in several ways. The fingers or the fist may be confined to one spot, acting on it, more or less vigorously, with a sideways or a turning movement; or the pressure may be transferred—always with a sideways

or a turning movement — to other parts of the body, upwards or downwards, thus converting the stationary treatment into a progressive one, and involuntarily applying the “rubbing” process; or we may make only very short progressive movements, increasing the pressure at the same time — pressing crescendo and then decrescendo, to use a musical expression — and then suddenly leaving the part massaged and beginning the process again in another place, thus involuntarily passing into the “kneading” treatment.

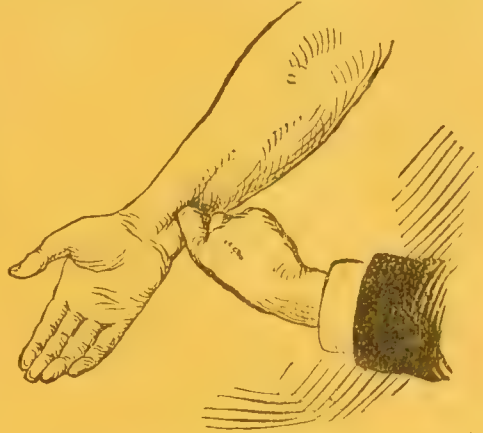


Fig. 173. Pressing with the First two Joints of the Index Finger.

As the reader will understand from this description, there is “pressing” and “pressing.” There is nothing under the sun out of which the science of healing cannot make capital.

## 11. Pushing.

Pushing is another part of the massage treatment. This familiar movement has also met the fate of a “scientific” classification, and incorporation into the massage curative applications.

The pushing, or, to express myself according to the jargon of the scientific, the process of pushing is accomplished by the united finger tips, the hand being stretched out and stiffened at the joints (Fig. 176). The movement of the arm may be worked either from the elbow or the shoulder joint. The hand must strike the body at a right angle. The patient sits or stands during the treatment. It is resorted to in cases



Fig. 174. Pressing with the First two Joints of the Four Fingers together.

where it is necessary to press deep between groups of muscles, as in cases of rheumatic or gouty pains. For the purpose of working compact masses of muscle (in the buttocks, for instance, or the thigh), it is well to combine



Fig. 175. Pressing with the Knuckles.



Fig. 176. Pushing with the united Finger Tips.

pushing and tapping (Chap. 13). By combining the two methods the parts are thoroughly shaken, and this, being communicated by the terminations of the nerves, causes a beneficial modification of deeper-lying tissues.

## 12. Prodding.

Prodding is a very specific form of massage — a method which has been particularly constructed for treating the nervous system by an expert of the name of Kellgren, and which is called “nervous vibration.”



Fig. 177. Position of the Fingers for Prodding.

the tips of the fingers causes, by the pulling and pressure,

The specific feature of this method consists in a local action on the nerves and nervous ganglia, which are accessible to the finger tips. In these the prodding with

new sensations, sometimes increasing up to painfulness. The nerves — or such of them as lie on the surface — are thrown into a kind of vibration for their whole length by the process, and the vibration is communicated as far as their terminations. The Kellgrenn method requires an exact knowledge of the course of the nerves, and so must be restricted to the masseur with some knowledge of anatomy and physiology. In the hands of such a person, however, this kind of treatment may have exceedingly good results. It is applied in the following way:

The masseur places his finger tips together, or his thumb and

middle finger, joined at an obtuse angle, on one of the patient's nerves or nervous ganglia, and communicates a continuous strain to all the muscles of his shoulder, arm, and fingers by the full force of his will. This causes a trembling of the arm, and the masseur works in this condition, laying a gentle pressure on the nerve or the ganglion.

I now quote the further description of the process, from Dr. Reibmayr's "Technique of Massage:"

"The movements must be so slight in vibration, that they can scarcely be felt by a hand laid on the arm of the masseur. They are so quick, that 200 or 300 of them take place in the space of a minute. The vibration may be done in two ways — either by placing the finger on a certain point and allowing it to vibrate there for some time, or by beginning at

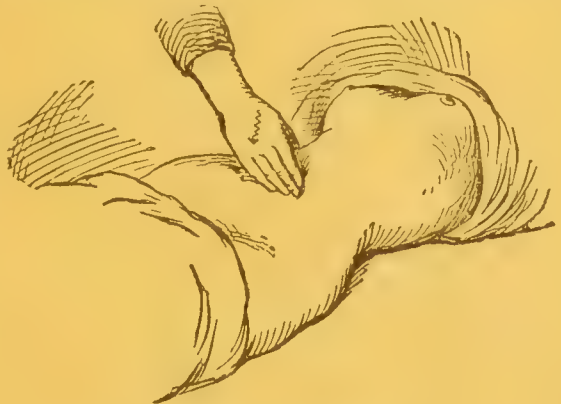


Fig. 178. Shaking the Stomach and the Transverse Colon.



Fig. 179. Shaking the Hips.



the trunk of the nerve and passing along, vibrating, to its termination, or vice versa. Sometimes the masseur vibrates quickly over quite a number of peripheral nerves. At other times, again, the masseur puts one hand on one point and the other on a second point, and vibrates with both hands, either retaining both hands at the spot touched first, or keeping one hand at the spot and vibrating quickly along the nerve with the other, or vibrating along or across with both hands together."

Care must be taken not to grasp either the skin or the underlying organs in making this application. They have merely to be put in vibration by laying the fingers on them. On the other hand, in the process of "shaking" (Figs. 178 and 179), the part to be treated is seized with one or with both hands, and the soft mass taken hold of is rapidly moved, either horizontally or vertically. (See further, as to the "Shaking of the Stomach and Transverse Colon," and of the hips, under "Massage, Abdominal.")

### 13. Tapping.

This manipulation is performed with the finger tips of the half-bent hand. The hand is only moved from the wrist (Fig. 180). To do it well requires a certain amount of lightness and suppleness in the movement of the wrist, in order to control the force of the application. It is generally combined with pushing (Chap. 11), for the purpose of acting more deeply and giving a wholesome stimulus to the muscles or nerves. (For further particulars as to the tapping of the chest, see under "Breast, Massage of the.")



Fig. 180. Tapping the Chest.

If the tapping is done with the flat of the hands, either the palm or the back, applied vertically to the part to be treated, this process is called "clapping," as described in the next Chapter.

## 14. Clapping.

Clapping is not only a way of applauding, but also a part of the massage treatment. It is not so much a question of applying great force in this treatment, as of light, quick, elegant, and elastic movement. The masseur has to take as much pains as the pianist to acquire the requisite looseness and suppleness at the wrist-joint; a good masseur is always recognised by clever and light clapping.

Figs. 181 and 182 illustrate the process of clapping. (Further particulars on the subject will be found under "Massage, Abdominal and Back.")



Fig. 181. Clapping the Abdomen with the Flat Hands. (Seen from above.)



Fig. 182. Clapping over the Kidneys.

## 15. Hacking.

Another part of the massage treatment is what is called "hacking." It acts much more vigorously and extensively than

tapping and clapping, the two other kinds of tapotement. As this treatment is only to be given where the seat of the evil is in powerful groups of muscles (the upper or lower part of the arm, the thigh, calf, buttocks, neck, and back), it generally goes by the name of "hacking of the muscles."

Like clapping, it demands great mobility of the hand, if it is to be done well and successfully. It is done either with the side stroke of the outstretched fingers (Fig. 183), or of the outstretched hand (Figs. 184 and 185), according as one desires a gentle and superficial, or a powerful and intensive action.



Fig. 183. Hacking the muscles of the arms.

In hacking with the fingers, the movement must come easily from the wrist; the fingers must not be closed and stiff, but must be opened before the hand falls on the body of the patient, so that they drop like the different members of a bundle when the hand is lowered. The touch must be very elastic, and the action almost painless. In hacking

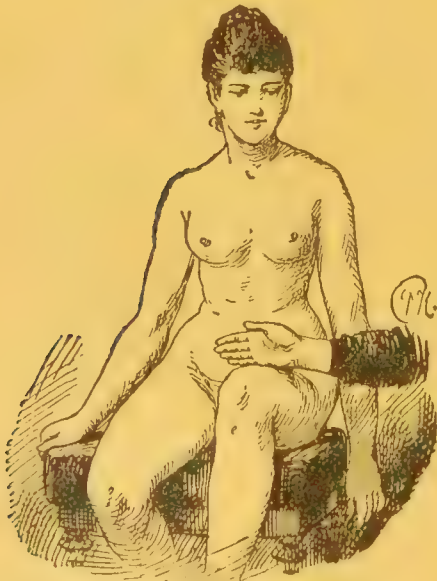


Fig. 184. Hacking the Muscles of the Thigh.



Fig. 185. Hacking the Muscles of the Neck and Back.

with the hand (Figs. 184 & 185) the movement is either from the elbow joint or the shoulder joint. This process



demands the exertion of a good deal of strength, and so should only be applied in the case of strongly-developed muscles (at the thigh, buttocks, neck and back). See further, under Massage, "Leg" "Arm" and "Back.")

## 16. Massage of the Head.

Having discussed in the preceding Chapters the different kinds of treatment that come under the heading of massage, we have now to turn our attention to the application of them to the whole body or its separate members.

As the processes to be applied to various parts of the body, in a certain order of succession, may be taken together as a complete type of massage treatment, we shall begin with a description of the massage of our various members — "from head to foot."

The massage of the head must necessarily be confined to a gentle and soft stroking and rubbing of the forehead, towards the temples and ears (Fig. 186), and from the cheeks towards the ears and down towards the neck.



Fig. 186. Massage of the Head.

The treatment of those parts of the head which are only covered with skin demands particular care and prudence. Hence the stroking or rubbing must be slow, with as even a pressure as possible, and for that purpose the balls of the index, middle, and ring fingers, or the ball of the thumb, or the flat of one or both thumbs, is used (Fig. 186). Parts that are particularly painful may be treated with vibratory and rotatory pressing movements.

The hairy part of the head may be treated with gentle tapping, with separate fingers, or with the tips of several fingers together.



Massage of the head, used in cases of headache,\* neuralgia in the head (*tic douloureux*), etc., is very useful, combined with relieving massage of the throat, and also with massage of the neck and back, and full massage. In such

cases the masseur must not forget to stroke gently downwards behind the ears.



Fig. 187. Turning the Head whilst sitting.

In cases where it is a question of a purely neuralgic condition, with its seat in the muscles, it is useful to follow up the massage with "resistance exercises" (see this in the Index) — turning of the head whilst sitting — for which the patient sits in front of the physician (Fig. 187). The latter applies both his hands to the patient's temples; turns his head round to the right whilst the patient resists the motion; then the head is brought back to its original position by the patient, the

physician resisting the motion. Then the same manœuvre is carried out to the left side, and so on for three or four times. This exercise also serves to strengthen the muscles at the sides of the neck and throat.

For curing certain forms of acute and chronic inflammatory affections of the ears, nose, jaws and larynx, the relieving external massage of the throat is always preferable, although in special institutes they administer an

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\* In cases of headache, which are mainly due to lack of blood in the head, massage may be of great service. It has the effect of attracting blood, like the head bandage. The masseur, standing in front of the sitting patient, and laying his thumbs in the middle of his forehead (Fig. 186), commences by stroking gently towards the temples, and then continues the process with the flat of the hands across the side of the head to the neck. The skin of the upper part of the head is massaged in the same way towards the neck and back, as far as the back of the head, the tips of the fingers combing the hair in a certain sense. After a few minutes the masseur proceeds to tap the head gently. This is done by giving light taps from the wrists with the fingers, as if you were playing the piano on the head.

“internal massage of the mucous membrane” of these organs by means of an instrument specially constructed for the purpose. As to the usefulness or uselessness of this treatment I shall say nothing, as the scientific people are not agreed about it themselves. I will only remark, that one of the main principles of the Natural Curative Treatment sternly forbids any direct mechanical irritation of inflamed internal or external parts of the system. (See also p. 352.)

## 17. Massage of the Eyes.

Massage of the eyes must, of course, only be resorted to with extreme caution, and in the most careful, sparing, and gentle manner, because in the eye we have to deal with an extremely fine, sensitive, and delicate organ.

The massage of the eyeball is accomplished by fixing the upper or lower lid, according to the seat of disease, to the eyeball with the index or middle finger, or the thumb (Fig. 188), and then rubbing quickly and lightly with the fixed lid. The free hand holds the other lid a little way off (Fig. 188). The friction may be either in a circular direction or in a straight line. In the latter method the massage is done in four parts, during which the glance of the patient is directed upwards, downwards, and to either side alternately.\* Very little pressure must be applied, and the movement must be done in quick time; moreover, the



Fig. 188. Massage of the Eye.

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\* To make the process clearer, let me describe it in another way. You stroke or rub the eyeball with the fixed eyelid in a downward direction, then in an outward direction, and afterwards inwards, and then in an outward and downward direction together, and finally an inward and downward direction.

treatment should not last more than two or three minutes, and should not be given more than once a day. In the beginning, the eye should not be massaged for more than one to one-and-a-half minutes.

The physiological effect of eye massage consists in an influence on the circulation of the blood and lymph in the vessels of the eye, because the pupil is generally distended for a short time after the manipulation.

The massage of the eyelids is applied by stroking them with an oiled or greased finger, generally from the inner towards the outer corner.

Massage of the eye is recommended in cases of disease of the cornea, and especially for opacity of the cornea from inflammation. It is also recommended for spots on the cornea, chronic catarrh of the conjunctiva, morbid growths (especially adherence of the iris with the cornea in front, or of the crystalline lens behind, which have not healed after inflammation of the iris), for cataract (where it is applied to "mature" it), for diseases of the eyelids (especially inflammation of their borders), for swelling, paralysis, prolapse, cramp, or contraction of the eyelids, etc.

It is frequently and usefully combined with relieving massage of the neck.

## 18. Massage of the Neck.

There is scarcely any other part of the system where the blood and lymph vessels are so close to the surface as at the neck. These vessels, therefore, can easily be reached with the hand or finger in massage.

The stroking of the neck may be divided into three acts. "The patient" — I am quoting Dr. Gerst's description — "is stripped halfway down the chest, stands upright, with his head thrown back, and his arms hanging down. The masseur then lays his hands flat on the neck, underneath and behind the lower jaw, in such a way that the palms are turned upwards, and the edges of both the little fingers rest in the right and left hollows between the head and the neck. The tip of the little finger and the nail joint of the ring finger come on the mastoid process behind the ear, and the ball of the little finger comes under the angle of the lower jaw. (First position.) With the edges of the palms in this

position, the masseur begins the centripetal stroking of the upper part of the neck.

"Whilst he moves the edge of the little finger, in stroking, to the middle of the neck," Dr. Gerst continues, "both hands turn on their long axis in such a way that the thumb edge of the palm ascends upwards towards the head, and, in the end, rests in the position which was at first occupied by the edge of the little finger. By means of this turning, the whole flat of the hand comes into contact with the neck, and is used for stroking (Fig. 189, Second manipulation). At the same time the stroker must take care to exert a moderate pressure with the respective balls of the thumbs on the great



Fig. 189. Massage of the Neck, according to Gerst. (Second manipulation.)



Fig. 190. Massage of the Neck. (Self-treatment.)

veins to the right and left of the neck, and, with the rest of the flat of the hand, on the superficial veins and lymphatics at the side of the neck. When it reaches the scapular region, the hand turns again on its long axis, and the thumb-edge of the palm is once more used for stroking.

"During the stroking of the upper part of the neck, the masseur must be careful to avoid any pressure on the lateral protuberance of the hyoid bone, as it causes pain and coughing; and for the same reason the balls of the thumbs must not press on the larynx in stroking the middle of the neck, but must leave it free between them, and move downwards by the side of it."



Thus writes Dr. Gerst, of Würzburg, who has the merit of first introducing massage of the neck in the treatment of a variety of diseases, and pointing out its high value.

The treatment of the neck can also be applied in another way. The masseur stands behind the patient, puts his hands from behind on the lower jaw and the neck (in the hollow of the lower jaw), as described in the Gerst method, and strokes the neck upwards and downwards with a moderate pressure, the hands gradually and slowly turning towards the neck with their palms, so that the stroking is done with the flat of the hand, and only the thumb-edge is working at the finish.

Moreover, the patient can massage his own neck, by throwing his head back a little, and using one hand at a time — the right and left alternately — for stroking. He lays the flat outstretched hand, with the thumb extended, on the right and left sides of the neck (which is greased), in such wise that the thumb is at one side and the fingers at the other side of the neck (Fig. 190). The hand now strokes rather sharply downwards, laying a certain pressure on the veins and lymphatics that lie on the surface and lead downwards. When one hand is tired the other begins, and so on for about twenty or thirty times. The hyoid bone and the larynx must not be pressed during the manipulation, but merely gently stroked, so as to prevent pain and coughing.

The above methods are subject to a good deal of modification, according to the seat of the evil and the effect desired; but however the neck may be stroked, care must be taken that the patient breathes strongly, deeply, and as regularly as possible during the process. The patients are apt to devote their attention to the treatment, and so only breathe superficially — sometimes stopping the breath altogether. That is a great defect and source of mischief, as the circulation of venous blood is obstructed thereby, and the effectiveness of the massage endangered.

Massage of the neck acts chiefly by relieving the pressure of blood in the head. As I said at the beginning of the Chapter, in the neck the great veins, and, to some extent, the lymphatic vessels also, lie so close to the surface, that we can cause a considerable increase in the flow of venous blood to the heart by stroking them downwards — that is, by a purely mechanical action. Now, if the patient is made to

breathe deeply and powerfully during the process, the strong negative pressure that is thus exerted causes an absorption of the venous blood, returning more quickly to the chest cavity — in other words, it supports the action of the massage (Reibmayr). Thus the combination of these two features explains the beneficial, relieving effect on the head of massage of the neck, and its recommendation in all sorts of cases of inflammation and congestion. In cases of toothache, neuralgia, headache (when it depends on excess, not on lack\* of blood), vertigo, giddiness, sunstroke, inflammation of the brain (as a result of wounds, for instance), etc., massage of the neck is just as serviceable as it is in cases of faceache, acute and chronic inflammation of the eyes, ears, or nose (or catarrhal affections of those organs), complaints of the larynx or jaws, relaxation of the vocal ligaments, and chronic hoarseness, etc.

Swollen glands in the neck (such as the glands for collecting the lymph), when very superficial, can be easily kneaded between the fingers in stroking the neck, or, by pressing them against the spinal column, they may be pounded between this and the fingers.

In cases of disease where massage of the larynx is particularly needed, the manipulation is conducted, according to Reibmayr, by crossing the fingers on the neck and gently rubbing the larynx downwards with the thumbs. After pressing the larynx a few times against the spinal column, the treatment ends with a vibratory movement, which is often repeated, and at length increases to a shaking. Even to push the larynx to the right or left has, according to Reibmayr, a very useful effect on the circulation in the laryngeal region.

For the purpose of strengthening the side muscles of the neck and its vessels and nerves, and of relieving the brain, it is also useful to practise certain resistance movements, which are often beneficially added when the massage is finished — for instance, the “turning of the head whilst sitting” (Fig. 187), in combination with the “bending of the head sideways whilst sitting.” I have already described the turning of the head on p. 668; the sideward bend of the head is accomplished in the following way:

The physician stands behind the patient (who is sitting down), and places his right (or left) hand on the patient's

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\* See the observation on p. 668.

left (or right) shoulder, and his left (or right) hand on the right (or left) temple and side of the head of the patient. The physician then bends the head, exerting a certain pressure on the shoulder, towards one side, the patient resisting, and then the patient brings his head back to the starting-point, the physician resisting. The movement is repeated from five to ten times, the physician alternately changing hands.

## 19. Abdominal Massage.

One of the most familiar, and, at the same time, one of the most important parts of the massage treatment, is the massage of the abdomen. It is held in much esteem amongst very large sections of the people, and has been successfully used for the cure of various abdominal diseases — especially of the digestive organs — both in civilized and uncivilized countries.

In massaging the abdomen, a two-fold effect is sought. Firstly, to hasten mechanically the removal of the contents of the bowels (the fæces) and the flow of the digestive fluids; and secondly, to stimulate, by a reflex action, the peristaltic or worm-like movement of the intestines. The hygienic gymnastic passive exercises, that usually follow the massage of the abdomen, strengthen the abdominal muscles, and so complete the effect of the preceding massage.

As the researches of anatomists have proved, the lymphatic vessels, as is also the case in the cavities of joints, open directly with absorbent pores into the interior of the abdominal cavity; and the absorbent quality of these lymphatics can be considerably increased by massage treatment, especially by its mechanical action.

This beneficial stimulation of the physiological processes in the abdomen leads to an increased secretion of the digestive fluids and an improvement in the motion of the bowels, a more complete use of the food taken, a more rapid removal of the indigestible or undigested portions of it, a regular action of the bowels, and a better nourishment of the whole system. The treatment may be given in various ways, as we shall now describe more minutely.

### The Chief Processes in the Massage of the Abdomen.

**First Manipulation.** — On Fig. 191 we have a manipulation, the action of which is principally reflex. It is

carried out with the finger tips of the right hand, which stroke the skin of the abdomen in a circle round the navel. The thumb rests sideways on the body, serving as fulcrum for the movement, which is performed chiefly from the wrist and the first joints of the fingers. Very sensitive people, especially nervous, hysterical women, cannot endure the manipulation on account of its very stimulating action. They get cramp in the abdominal muscles, particularly if the manipulation has been very gentle and soft. If, however, the masseur works with more vigour and pressure, rubbing the abdomen in a circular direction — as is done in *massage à friction* — he may use this manipulation even in the region of the stomach in order to produce a mechanical effect. In this case the finger is not greased nor oiled, so that the skin of the abdomen may follow the movements of the finger.

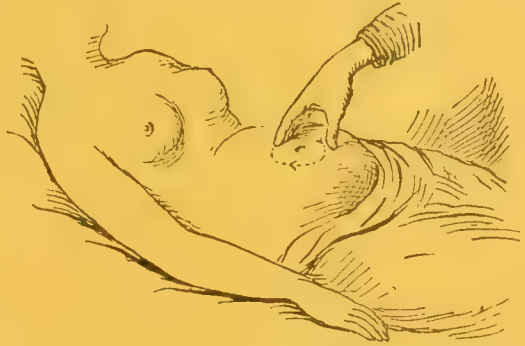


Fig. 191. Manipulation for Stimulating the Action of the Bowels. (First manipulation.)

more vigour and pressure, rubbing the abdomen in a circular direction — as is done in *massage à friction* — he may use this manipulation even in the region of the stomach in order to produce a mechanical effect. In this case the finger is not greased nor oiled, so that the skin of the abdomen may follow the movements of the finger.

### Second Manipulation.\* — On Fig.

192 we have a second manipulation, which is used in opposition to the above “first manipulation,” solely for the purpose of mechanically stimulating the action of the bowels in the way prescribed by nature.

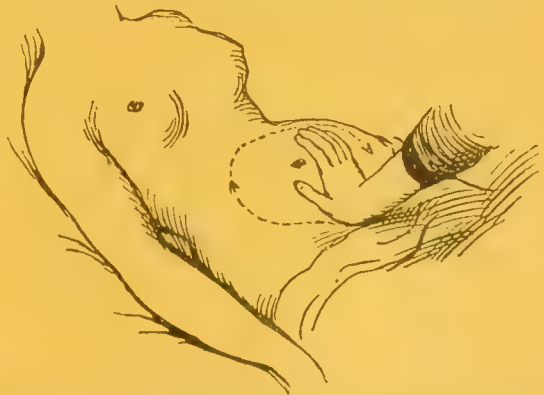


Fig. 192. Manipulation for acting on the Liver and Transverse Colon. (Second manipulation.)

\* With the “second manipulation” we begin the series of the movements which are of the greatest importance in the massage of the abdomen. By a moderate pressure and soft stroking, the liver, the glands of the stomach, and the whole of the intestinal canal, can be stimulated to increased activity, and the circulation in the blood and lymphatic vessels of the abdomen can be accelerated.



In this process the finger tips remain passive. The pressure comes chiefly from the ball of the thumb and of the little finger, whilst the rest of the fingers, slightly bent, follow the movements of the hand without exerting any pressure. The hand is, in this case, stretched out as much as possible — almost at a right angle. The movement comes from the shoulder-joint and elbow-joint. The starting-point of the manipulation is to the right of the navel, the fingers being directed towards the navel. (Fig. 192.) The base of the hand is pressed down a little, so as to bring the liver between the hand and the diaphragm, and so exert a certain amount of pressure on it. In this position the masseur begins his circular movement on the right half of the abdomen in an outward and upward direction, goes as far as the edge of the right arch of the ribs, then makes a slight turn with the hand, removing his arm a little from the body of the patient so as to reach the pit of the stomach, passes along the edge of the left arch of the ribs to the left half of the abdomen in an outward and downward direction over the S-shaped bend of the colon, then crossways over the region of the bladder (during which the arm again approaches the body of the patient), and so returns to the starting-point.\*

As the chief object in this process is to act mechanically on the upper part of the ascending colon, the liver, the transverse colon, the descending colon, and the lowest section of the small intestine, it is applied almost regularly and generally when the abdomen is massaged; sometimes it also has a reflex action. It is particularly recommended for congestion of the liver and jaundice.

**Third Manipulation.** — With this process, as illustrated by Fig. 193, it is sought to exercise a direct mechanical influence on the contents of the bowels. Hence it is more particularly applied to those sections of the bowels where the fæces generally remain some time (ilium, cœcum, and S-shaped curve of the colon.)

In this manipulation, according to Reibmayr, the masseur places his right hand, with the finger tips directed downwards, flat on the region of the right hip bone, and the left hand on the first joints of the right; and he strokes thus

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\* For the position of the intestines in the abdominal cavity, see Fig. 1, p. 14.

with both hands, in an outward and upward direction, following the course of the cœcum. On returning to the starting-point he takes a line past the navel, moderating the pressure in doing so, if not removing it altogether. The left hand is laid on the right, not only to strengthen the pressure, but also in order to prevent too great a bend of the fingers of the right hand in the first joints. The fingers must lie as flat and outstretched as possible, along their whole length, during the treatment.

In order to conduct the process better, the masseur should stand in rather an inclined position. He turns his left side to the patient, who can then also turn his pelvis a little to the left.

The movements of pressure and stroking are chiefly extended to the cœcum and the ascending colon. The contents of the cœcum are pressed upwards, exudations in its vicinity are broken up and reabsorbed, long-standing growths are squeezed out, and the muscles of the cœcum are strengthened. In cases of constipation where the fæces lie in



Fig. 193. Manipulation for acting on the Cœcum and Ascending Colon. (Third manipulation.)

the cœcum, or where the other morbid phenomena we gave above are present, the use of the third manipulation is advisable.

**Fourth Manipulation.** — This manipulation, like the preceding one, directs its action to the ascending colon and its S-shaped curvature. The hands must be placed as shown in Fig. 193, only the finger tips are turned downwards and inwards. As the masseur approaches the pelvis in his stroking movement, he goes more deeply into it with the first joints of his fingers. The finger tips, however, should not be laid on the abdomen like claws, but must remain flat, as in the third manipulation.

As it is sought to press stubborn fæces down towards the rectum by this manipulation, the masseur must begin with the lowest sections of the bowels next to the rectum, if the ascending colon and its S-shaped curve are filled with

old, hardened fæces, so as to make room. For this purpose he endeavours to grasp the bowel, which is felt like a rope, at its lowest part, and to squeeze out its contents into the rectum. (Reibmayr.)

### Manipulations which have a Mechanical and a Reflex Action, and which are used to Strengthen the Abdominal Muscles.

Kneading the abdomen (Fig. 168) requires a good deal of practice, if it is to be done cleverly and effectively. It must never be done too strongly, as that would stretch the abdominal muscles, and make it impossible for the masseur to affect the bowel. Hence it is best at first to work with both hands, kneading the abdominal muscles and the intestinal canal between the outstretched fingers of one hand and the fingers of the other, half-closed into a fist. (Reibmayr.)



Fig. 194. Vibrating the Solar Plexus.

The pounding or milling of the abdomen is done with the flat of the hand and the adjoining under-surface of the lower part of the arm. The abdomen is pushed forward as it were (Fig. 168), and worked something like dough.

The vibration of the abdomen, or parts of it, varies from the soft and gentle vibration of the solar plexus to the shaking of the loins. The variations arise from differences in the strength and rapidity of the motion.

Fig. 194 illustrates the solar plexus vibration.\* In this treatment the masseur presses deeply, though gently, into the pit of the stomach, with the outstretched fingers of one or both hands, causing a gradually-increasing vibration of the part. The hand and arm are thrown into a vibratory motion in this manipulation.

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\* The solar plexus is the name given to the tissue of the ganglionic nerves in the gastric region. (By "ganglionic system" we understand the sum of the nerves which are united in the nervous network of the abdomen.)

Another manipulation in the vibration of the stomach and the transverse colon is shown in Fig. 178. In this the masseur grasps the part of the upper abdomen which it is intended to treat, as deeply as possible with one hand, and makes a series of short, swift, vibratory movements with it in a horizontal direction.

If the movement is intensified and accomplished with both hands, the vibration increases to a shaking; and in this again we distinguish between the shaking of the body and of the hips. Fig. 179 illustrates the shaking of the hips, in which the masseur places his hands on the hips of the patient,

so that the fingers come between the ribs and the hip bone, and the balls of the thumbs in the middle. Then he "shakes" the patient strongly for a few seconds, pausing a little before the process is repeated, which is done several times.

In the shaking of the body the hands are placed side by side on the abdomen, and pushed backwards and forwards horizontally with the skin of the abdomen, slowly at first, but increasing the speed gradually. (Thure Brandt.)

For a change in applying the various methods we have described, or are going to describe, the stomach may be stroked in the way illustrated in Fig. 157. This is done by passing downwards with the thumbs of both hands from the bottom of the breast-bone across the pit of the stomach, with more or less pressure, until the hands are brought slowly and gradually down to the navel. Alternately with



Fig. 195. Dividing the Abdomen with one hand.

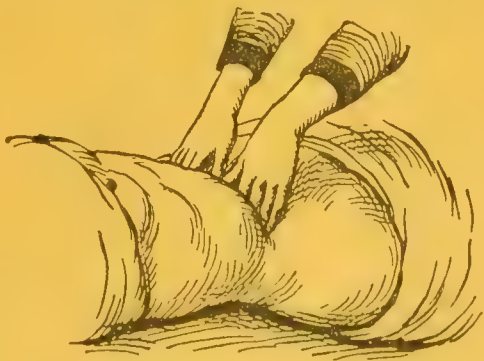


Fig. 196. Dividing the Abdomen with both hands.



this method, the masseur may place his hands under the left and right arches of the ribs, and stroke downwards over the pit of the stomach from both sides together.

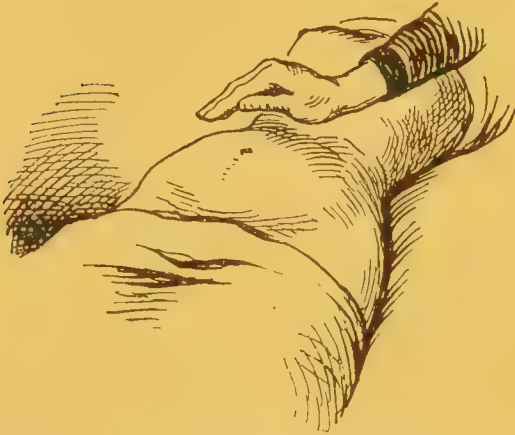


Fig. 197. Clapping the Abdomen with the hand hollowed.

a good supply of gastric juice of the normal quality, the strengthening of the muscles of the stomach, and the acceleration of the clearing of

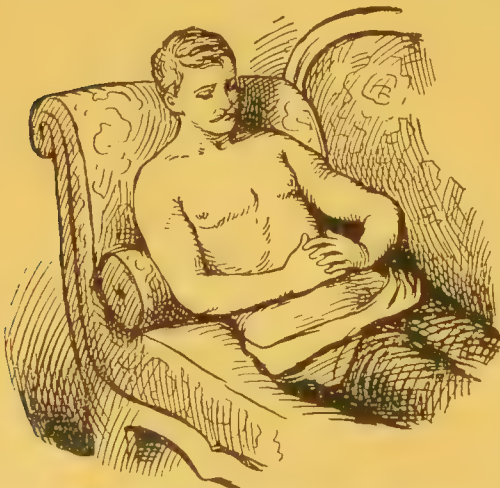


Fig. 198. Self-massage of the Abdomen with both hands.

the shoulder and elbow joints. When both hands are used, the manipulation is done by moving the hands in opposite directions from the middle of the abdomen outwards, and then inwards again.

The massage of the abdomen ends with an effective

Or the right hand alone may be placed immediately under the left arch of the ribs, and the pit of the stomach may be stroked across with it, with more or less pressure, as far as the right arch of the ribs.

The physiological effect of massage of the stomach consists in the removal of obstructions in the blood vessels of the stomach and adjacent organs, the production of the normal quality, the strengthening of the muscles of the stomach, and the acceleration of the clearing of the stomach.

Dividing the abdomen with one or with both hands (Figs. 195 and 196) may also be enumerated amongst the most effective processes. The thumb and the outer edge of the index-finger form a kind of sickle-shaped instrument, with which the abdomen may be divided across, the hand being slowly and gradually worked downwards. The movement comes from

clapping (tapotement) of the part. The treatment is generally given by using sometimes the palm-side and sometimes the back of the hand, as is clearly shown in Fig. 181. If it is desired to "clap" very softly and gently, the hand is hollowed for the purpose. (Fig. 197.)

If the patient wishes to massage himself, without the assistance of a masseur — it is not so effective in such cases — the treatment will generally have to be confined to gentle stroking, rubbing (manipulations 2 and 3) and clapping (Fig. 197).

The patient may use one or both hands for self-massage, according to the strength of the effect he desires; if he uses both, he either folds them or lays them on top of each other. (Fig. 198.)

Massage of the abdomen is recommended in all ailments in which the first step towards recovery must be the stimulation of the low digestive power. This is the case in the vast majority of illnesses. It would take too long to enumerate them all here. I shall only point out a few very prevalent diseases for which massage of the abdomen is particularly recommended. Most chronic diseases depend, as the reader knows, on a bad condition of the metabolism, and the massage of the abdomen will be found very beneficial in promoting the digestive functions in all cases where there is question of anomalous formation of blood, defective or irregular circulation, improper distribution of blood, obstructions and congestion, all of which are more or less the result of a bad digestion. Massage of the abdomen is one of the best remedies for poverty of blood, anæmia, the immense variety of nervous complaints, especially hypochondria and hysteria, diseases of the stomach, liver and spleen, chronic catarrh of the stomach and intestines, hemorrhoids, jaundice, debility of the stomach, distension of the stomach, constipation, long-standing exudations in the abdominal cavity, etc.

### **Important General Observations on the Massage of the Abdomen.**

We have now to devote our attention to a few other points in connection with massage of the abdomen, which rather concern the duration of a sitting, the application of the various manipulations, the order in which they follow, the position of the patient and of the physician, etc.

As to the duration of a single sitting, it should not, as a rule, last longer than five to ten minutes; half that time is enough for children. According to individual constitution and disease, it is well to pause after every minute or two — it is best to do so at the termination of one of the various manipulations that succeed each other in a course of treatment — so that the masseur may rest a little, and the patient may, perhaps, take a little active exercise in hygienic gymnastics — for instance, the raising of the body.

The position of the patient during massage of the abdomen requires very particular attention. As it is important that the skin of the abdomen should hang loose during the treatment, care must be taken that the patient breathes with his mouth open and regularly, and especially that the skin is not strained or tightened by the pressure, as that would endanger the effectiveness of the massage.

A further condition is that the stomach must not be full, and that the bladder, and, if possible, the rectum, should be evacuated beforehand. The upper part of the body and the head must be raised a little, the legs lowered and moderately stretched out. During the sitting the patient may be allowed to lie on his right side for a little, as a change from the back.

The best rest for the patient during massage of the abdomen is what is called a "massage bench," which is easily accessible on every side. The masseur sits or stands sideways, and for most of the manipulations he needs to be at the right side of the patient. For manipulations that are executed on the right half of the abdomen, it is best for him to cross over to the left side of the patient.

The order of the various manipulations, and the way of working the abdomen, must be settled according to the indication in each case.

If a more mechanical effect is desired (for instance, for the purpose of curing chronic constipation), the masseur seeks both a direct and a reflex action on the smooth muscles of the intestinal canal. He resorts to strong circular friction (the third and fourth manipulations, Fig. 193), and then vibration and shaking (Fig. 179), and dividing the abdomen (Fig. 195 and 196). If, on the other hand, general reflex action is chiefly desired, as is the case, for instance, in the massage of the abdomen, as a part of complete or general massage of the body, the masseur begins

with the first manipulation (Fig. 191), then proceeds to kneading, accomplishing the process in large movements in a circular direction, in the way I have described under the "Second Manipulation" (Fig. 192), for effleurage. Then follows circular friction (Fig. 193), afterwards pounding and kneading again (Fig. 168), then a certain amount of vibration (Fig. 194) and shaking (Fig. 178), and, finally, the cycle of manipulations closes with a vigorous tapotement ("Clapping," Figs. 181 and 197.)

If a sort of strain or cramp of the stomach sets in during massage of the abdomen, as happens sometimes, particularly whilst the stomach is being treated, so that the stomach feels like a strongly-contracted womb (uterus), the rule is — wait until the strain is gone. One must be careful not to massage the region of the bladder — it might cause an involuntary evacuation.

### **A few effective Passive Exercises of Hygienic Gymnastics, in connection with the preceding Massage of the Abdomen.**

It is very useful to combine certain passive exercises of hygienic gymnastics with massage of the abdomen, and



Fig. 199. Rolling the Body, sitting astride a Bench.

I shall now give a brief description of them. The reader is already familiar with the intimate connection between



the functions of the muscular system and those of digestion and evacuation. Digestion, absorption of the digestive substances, and removal of the indigestible and undigested portions of our food, are controlled by a great variety of



Fig. 200. Bending the Body forward, sitting astride the Bench.

nerves, which direct the functions of the entire digestive apparatus, as well as those of the muscles of the stomach and intestines. The best means of raising the tone of the digestive organs is to strengthen their muscles, to relieve the ab-

dominal and pelvic organs of morbid congestion, to accelerate the circulation of the blood in the vessels of the



Fig. 201. Bending the Body backward, sitting astride the Bench.

liver and the intestines, and to evacuate the contents of the rectum regularly. Certain passive exercises of hygienic

gymnastics have a beneficial action, partly direct and partly reflex, on the abdominal and pelvic organs, stimulating the functions of the digestive organs, and so serve undoubtedly to complete the effect of the preceding massage of the abdomen, with which the same object may be attained in a different way. Passing to the description of particular exercises, we have, first of all, in the rolling of the body and in the bending forwards and backwards of the trunk, whilst sitting astride or crossways, excellent means of acting most beneficially, not only on the ligaments of the spinal column, the spinal cord,

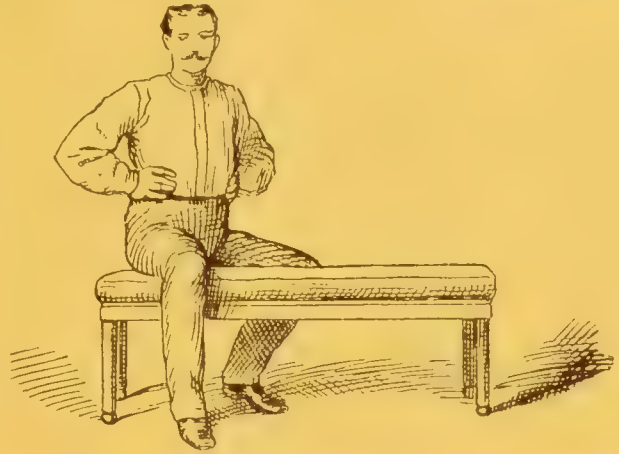


Fig. 203. Bending the Body forward, sitting Crossways astride the Bench.

and the nerves that proceed from it, but also on the vessels of the spinal cord and of the pectoral and abdominal cavities.

During these exercises the patient sits astride a bench, his hands supported on his haunches (Fig. 199). The masseur

stands behind him, and laying his hands on his shoulders, rolls his body round, without any resistance on the part of the patient. The movements are, first, three times to the right, and then three times to the left. Then the body is swayed backwards and forwards (Figs. 200 and 201) two or three times; after this it is bent backwards and forwards, with the patient sitting crossways astride the bench. (Figs. 202, 204.)

As the masseur alone is responsible for the movement, the patient must remain passive throughout, especially during the rolling, so that all the muscles of the trunk are gradually brought into play. The patient must keep the



Fig. 204. Bending the Body backward, sitting Crossways astride the Bench.

upper part of his body and his head as straight as possible during the exercise. During the rolling, care must be taken that the movement is not in the nature of a push, and that the shoulders remain level. The exercises may be done in many other ways, but I am compelled to refrain from describing them by the limits of the present work. In gymnastic institutions these exercises are taken on a bench, the floor of which is provided with two leather caps for the patient to insert his feet in, and keep them firm. He will find this necessary when the above passive exercises are changed into resistance exercises, in which the patient and the masseur resist each other in turn. The limits of my work again prevent me from entering upon a description of these.

I must, however, not omit to mention that these exercises must not be taken when there is inflammation of the abdominal organs, or in certain kinds of diseases of the female organs. They must also be carefully adapted to the constitution of the patient in point of strength and frequency.

These movements of the trunk are often followed by certain exercises of the legs, which, apart from the powerful effect they have on the muscles and joints and the circulation and distribution of blood in the legs, also act beneficially on the muscles of the abdomen, loins, and pelvis; they consequently

have a relieving effect. The exercises are illustrated by Figs. 205 to 207. They may be done singly or in pairs. For rolling the thigh whilst in a reclining position, the patient lies on an adjustable massage

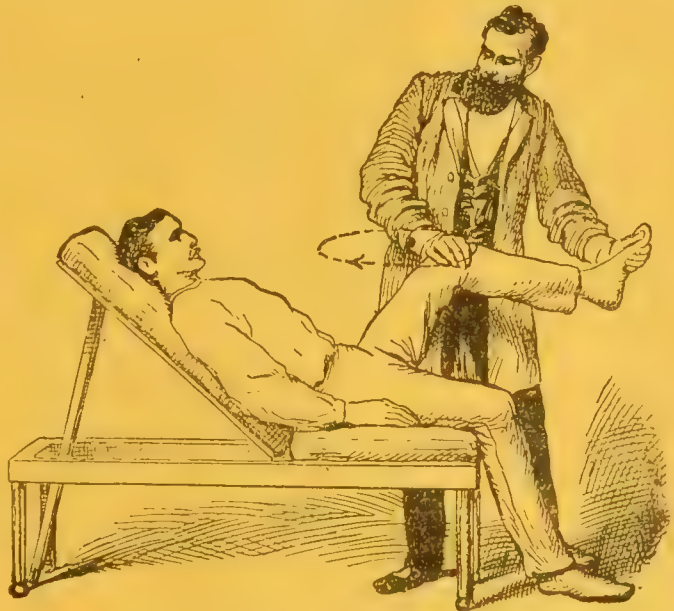


Fig. 205. Rolling the Thigh, Reclining Position.

bench, with the upper part of his body raised; the foot-piece is taken away, and one of the patient's knees is drawn towards his chest. The masseur stands beside the leg that is raised, grasps the patient's foot with one hand and his knee with the other, and leads it in a circle five to eight times to the right, and as many times to the left (Fig. 205). This exercise is often combined with the one illustrated on Fig. 207, the hip joint being vigorously bent and stretched after the rolling. The exercise closes with a short gentle press of the leg against the abdomen.

The bending of the thigh and stretching of the knee, whilst in a half-lying position (Fig. 206), is generally recommended for diseases of the hips (*sciatica*, for instance), and for diseases of women where it is necessary to get



rid of old exudations. The masseur takes hold -- I am following Reibmayr's description -- of the lower part of

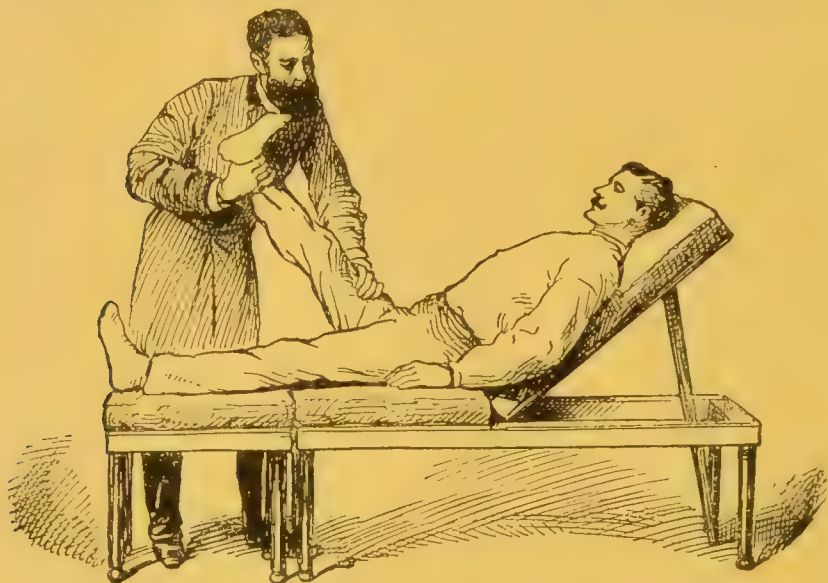


Fig. 206. Bending the Thigh and stretching the Knee, in a half-lying Posture.

he leg from below in the region of the tendon Achilles,\*

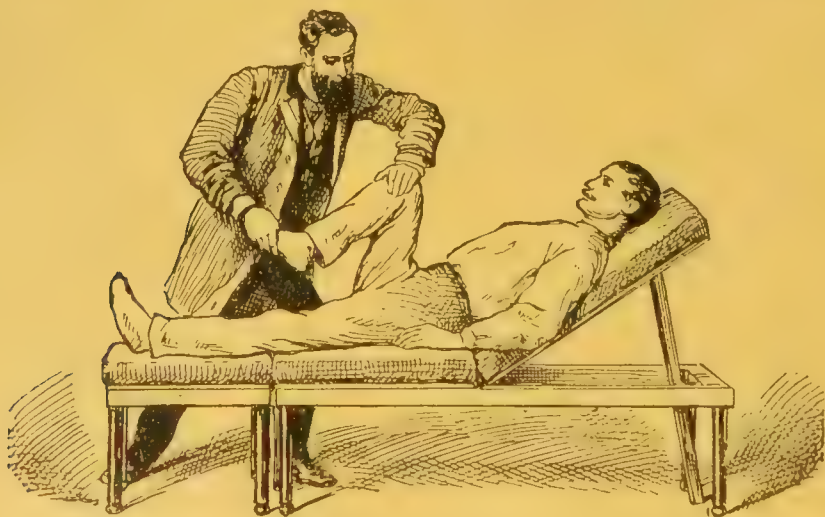


Fig. 207. The Bending and Stretching of the Thigh, in a half-lying Posture.

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\* That is the strongest tendon in the foot, the extensor tendon, which reaches from the calf to the heel, and is so called because the Greek hero, Achilles, met his death from the shot of an arrow in the heel.

places his other hand flat on the knee joint, which he has to prevent from bending, and slowly raises the fully out-stretched leg as far as he possibly can.

In the bending and stretching of the leg whilst in a half-lying posture (Fig. 207), one hand is placed on the knee, the other grasps first one and then the other foot, and bends and stretches the hip joint vigorously with each foot from five to eight times. The patient remains quite passive. The knee must not be bent too much in this exercise.

## 20. Massage of the Female Sexual Organs.\*

The real founder of the "Massage Treatment for Female Diseases" is a Swedish major, named Thure Brandt, an able thinker and observer. After finishing his studies at the Central Institute of Hygienic Gymnastics, at Stockholm, he became a practical masseur and gymnastic instructor. In the course of his practice he succeeded in discovering a manipulation for curing prolapse of the rectum;\*\* and on further reflection, he formed the idea of applying this special treatment, with certain modifications, in diseases of the female organs, and especially for curing prolapse of the womb.

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\* The "massage of the male sexual organs" is confined mainly to treatment of the bladder and prostate gland (at the upper part of the urethra). The bladder is massaged from without with gentle vibration and stroking, pressing deeply into the lower pelvis with the fingers. The prostate gland is massaged outwards from the rectum with the well-oiled index-finger of the right hand; it is stroked ten to twelve times downwards, then the same number of times from the middle to the right and left; then there is a short pause, after which it is pressed several times, crescendo and decrescendo, then stroked again, and finally the process ends with a gentle vibration. It is recommended in cases of hypertrophy, excessive swelling, and morbid affection of its middle or under flap, which causes an obstruction, if not entire retention, of the urine.

\*\* Let us describe, in Thure Brandt's own words, the raising of the rectum for the cure of prolapse: "The masseur stands at the right side of the patient (who is in a crooked, half-lying posture), and lays his left hand on her right shoulder, and the right hand on the left hypogastrium (lower part of the abdomen). He then moves his finger, vibrating delicately, into the region of the pelvis as far as the bend of the ilium, which runs into the pelvis from the left iliac fossa (the grooved depression in the left hip bone. Author). He then endeavours to grasp this curve of the bowel from underneath by bending his hand. The rectum is then drawn, with vibration, in the direction of the patient's left shoulder, the hand being placed on the hind wall of the pelvic cavity. This is repeated three or four times."

The massage treatment in general may safely be described as a Natural Curative Treatment, a treatment which effects the cure of disease by the simplest and most harmless means, and the Thure Brandt method, the massage treatment of the female organs, is no exception. It is not surprising that there are limits to the successful application of gynæcological massage, depending on the possibility of cure of the diseased organism, or indications against the use of massage in certain diseases. These limits are, however, wide, and the cases which are unsuitable for treatment by the Thure Brandt method are exceptional. They consist, for the most part, either of bad cancerous growths, which can rarely be reduced by the Thure Brandt massage, or acute inflammation and infection (gonorrhœa, chancre) of recent origin, which, at least in the early stages, make the manual treatment of the female organs inadvisable. However, the percentage of diseases which cannot be cured is very slight in comparison with the immense number of the remaining female ailments.

The gynæcological massage, which consists principally in the treatment of the womb, must vary according to the condition of that organ at the moment. Hence we distinguish the massage of the non-pregnant womb (the massage of the pregnant womb during the act of giving birth) and the massage of the womb immediately after confinement, either for assisting the expulsion of the after-birth or for preventing hemorrhage.

A distinction must also be made between the massage proper which is applied locally, and the gymnastic exercises that follow or (generally) precede it, and serve to support its action. The chief effect of the Thure Brandt method consists in the application of what is called internal massage; the gymnastic exercises that are connected with it, and which the inventor, Thure Brandt, considers "to be inseparable from the massage treatment," serve only to strengthen the effect of the subsequent manipulations, and may be safely omitted in certain forms of disease.

### Massage of the Non-pregnant Womb.

I take the description of the Thure Brandt massage of the non-pregnant womb, in combination with the corresponding gymnastic exercises, from Dr. Freudenberg, who, as a

former pupil of Brandt's, an expert in female diseases, and for many years physician and teacher at the Cologne Provincial Institute for training midwives and for confinement, as well as on account of a long experience in the Thure Brandt method, may well be regarded as one of the most distinguished representatives of the treatment, and who seems to me to be the best interpreter of my own experiences in this department, and my views as to the manner of the treatment. He writes as follows, in his very valuable little work on "The Brandt Massage in Female Diseases:"

### **Curative Gymnastic Exercises for Women.**

The means by which the massage proper, or internal massage, is applied in the Thure Brandt method, are very varied. They embrace, more or less, the whole of the large province of Swedish hygienic gymnastics.

For our purpose we must first distinguish two great groups: exercises which draw the blood away from the pelvis, and those which attract it. For the sake of example, I need only mention cases of too copious or too scanty a menstrual discharge. In the former case exercises of the first group are required, in the latter, of the second group.

Amongst exercises of this kind there are some which may have a stronger or a weaker action; the selection of them, and the determination of the order in which they are to be applied, depends entirely on the form of the disease, the constitution of the patient, and the duration of the preceding treatment.

Besides these exercises of more general effect, there are others that act on certain muscles, or groups of muscles, and that come into play in female diseases; and there is, further, a whole class of exercises which seem to have no direct connection with the disease in itself, being directed to the treatment of symptoms of disease in other organs. Rarely, for instance, as Brandt himself observed, do we find women with female ailments who complain exclusively of trouble in the part that is really diseased. With these are associated pain in the head or breast, palpitations, shortness of breath, cold hands and feet, and a hundred other symptoms, which partly proceed from the female complaint and partly from a common cause with it. On account of these manifold troubles, it seems advisable to join, with the treatment of the abdominal disease, hygienic gymnastics, with or without other medical treatment, as to which the circumstances of the individual case must decide. It is clear from this, that our treatment can take almost the whole of the gymnastic exercises into its service. As, however, excess in the various exercises would not conduce to the treatment, Thure Brandt has selected the best out of the many good exercises for different diseases, and incorporated them in his system. It is obvious, of course, that there is no hard and fast codex of these exercises.

These exercises are again divided into active, active-passive, and purely passive, according as the patient accomplishes them alone, or with the aid of a second person — resistance exercises (alternate drawing, pressing, turning, etc., with a continual but moderate resistance of the partner); or, thirdly, the assistant does the exercises alone, the patient remaining quite still. As an example of an active exercise, we may take any form of the usual standing and chamber gymnastics, or the rolling, bending, or stretching of the feet whilst lying down.



As an example of a resistance exercise, we may take the bending of the arm. The assistant grasps the wrist of the patient with one hand, and puts her other hand on the corresponding shoulder; then she bends the arm slowly, the patient offering a certain resistance. The degree of strength to be exerted on either side needs careful determination and control. When the arm is completely bent, the patient, on her part, tries to force it back against the resistance of the assistant. All such exercises must be accomplished very slowly and evenly, which is not so easy as it would seem at first sight. For the passive form, I will give as an example the simple rolling of the arm, which needs no further description. The latter exercise is given, for instance, in cases of congestion, when the patient is too weak to take active or resistance exercise.

Brandt by no means excludes, on principle, the use of hygienic gymnastic apparatus, yet he rightly considers that the mechanical treatment of female ailments will be more readily adopted the easier the apparatus is procurable. A bed or chair serves to lay the feet on; the edge or back of a chair, or a high shelf, to press the hands against; two cords, or the door-frame, to hold by — in a word, Brandt only uses the simplest apparatus that are obtainable. And it is well that we can do so. In towns which have a well-conducted medico-mechanical institute, I should not oppose visiting them, and following the exercises in use in them, in so far as they adapt themselves to the general plan of the treatment, but, on the other hand, I will not support the notion that the use of gymnastic apparatus is at all necessary for our treatment. In fact, no apparatus, not even the most perfect, can replace the living, feeling, and intelligently-directed hand.

### **The Internal Massage proper.**

For the examination, as well as the treatment, we use a couch with raised back, free and accessible on both sides. By the side of the couch is placed a chair, which is a little higher than it. The masseur sits on this with his face towards the patient's face, in order to be able to judge from its expression the impression his treatment is making on her. In this way he is able to relax his pressure at the slightest indication of pain. The patient has taken off her bodice, or opened it in front and pushed it aside, and has loosened her skirt at the waist and let it down over the hips. Then she lies in her clothes on the divan, with raised back and legs drawn up. The masseur, sitting near her, after disinfecting and well oiling the index-finger of one hand, inserts it into the vagina under the nearest leg, and places it gently, so as to have the necessary control over the position of the internal organs, on the neck of the uterus (womb), whilst he massages the abdominal organs in question with the other, either through the patient's chemise or underneath it. As a rule, he is only helped by the hand inside in the sense that it tells him the position of the internal parts, the massage of which is naturally easier from their being held between the two fingers. But if the assistance of the hand inside, in determining the relative position of the parts and their size and character, etc., may be dispensed with, there are other things for it to do. The organs to be treated are generally flexible, hence, if the pressure is applied only from the outer side, they are displaced, and evade the hand that is massaging the pelvis, so that they cannot be examined and treated. The insertion of the finger in the vagina prevents this. It presses the parts against the hand that is working without, and so makes them amenable to the massage acting on the abdomen. Hence we see that the hand that is inserted must be kept

still as soon as it has taken up a definite position; the external hand alone being active; or, at the most, the inserted finger slowly changes its position at times, in order to follow the outer hand when it passes to new parts. It is a general rule, which cannot be sufficiently emphasised in the face of those who affirm that internal massage is apt to cause sexual excitement, that the internal hand rests, whilst it is the external hand that works. Even in cases where the finger inserted in the vagina seems to take part in the massage, when, for instance, there is question of pressing a certain abdominal organ between both the masseur's hands, the internal hand only fixes the organ whilst the external one does the pressing. The difference from the usual function of the inserted finger — that of determining the position of the internal organs and the movements of them caused by the massage — consists merely in the fact that in this case the inner finger fixes a single organ, or a definite part, so as to afford a sure and steady background for the outer hand to press it against. I need not enlarge on this, as it is obvious to everyone, that if one wanted to press or push against a certain and generally slippery organ with the inner and outer hand at the same time, it would simply slip between the fingers. Try to push a billiard ball, or other round object, with the tips of the two index-fingers from two different sides at the same time — it invariably slips to one side. Moreover, the masseur would, in that way, lose all control over the pressure to be exercised on the internal organ, and massage requires the utmost exactness and most accurate measurements. Naturally the outer hand only works from the rectum, never from the vagina, when there is question of internal massage of the pelvic wall, which cannot well be reached from the skin. This manipulation is rarely resorted to.

It is frequently necessary to insert two fingers in the vagina. There are also cases in which it is necessary to insert the thumb in the vagina and the index finger in the rectum.

I must observe that, in the virginal condition, unless there is some urgent reason for doing otherwise, the hand is always inserted in the rectum, so as to spare the virginal membrane. I can say, from my own experience, that by practice one becomes almost always able to examine and fix parts that are otherwise reached through the vagina. In many cases, even of married women, it is better to examine and treat through the rectum. That does not, naturally, apply to all cases.

It is a rule for both the masseur's hands not to make the necessary movements with the fingers only, but with the whole arm. The fingers are too weak, and tire too quickly, moreover, their movements are not steady. Hence the fingers must be held stiff, and the whole arm effect the necessary movements as roundly as possible, with the elbow joint very free and mobile. The elbow (of the hand that is inserted) rests on the couch.

For the body to remain clothed with the chemise during the treatment does not interfere with it as many imagine. That can be settled by experiment. As the patient's skin is often clammy, and so it is impossible to stroke it properly — and the masseur's hand is often moist as well — the insertion of the dry smooth chemise between the two is of very good service, when one gets accustomed to it. If women have woollen underclothing, or stiff, coarse cotton chemises, these must of course be drawn up out of the way, and a piece of linen or silk put on the place. Like Brandt, I have always conducted the treatment dry, that is to say, without greasing my hand, and so have avoided uncovering the patient during the whole proceeding. Since I adopted the Brandt method, I have made much less use of the examining chair, which is in general use, than I did before, and I may say that those

patients whom it was necessary to examine in the usual way on the women's chair during the treatment, for the purpose of closer inspection with the vaginal speculum, or for some other reason, have always found this very distressing, in comparison with the customary position during massage.

The masseur retains the same position beside the patient, when an assistant, supported by him, raises the womb or performs some similar act. The assistant, in such cases, stands at the foot-end of the couch, against which she presses one knee, whilst she bends the other and places it on the edge of the bed; she leans right over the patient, and takes hold of the abdominal skin or the womb with both hands, at the place which the masseur indicates with the hand that lies outside on the abdomen. The hand he has inserted in the vagina then controls the course of the subsequent raising operation which is accomplished by the assistant, and enables him to put an end to it at the right moment.

I will only add, in conclusion, that certain inspections and manipulations are conducted whilst the patient simply stands in front of the masseur, who sits on the chair or kneels beside her, just as the examination of the pregnant is often carried out in some countries. As all the abdominal organs are lower when the patient is standing, and so can be more easily reached through the vagina or the rectum, this method of examination is often advisable, especially for masseurs who have short fingers.

### **Description of a Brandt Sitting.**

Now that the reader is acquainted with all the working material that is needed for the Brandt treatment, he will be interested to learn how one of these massage sittings takes place.

I must premise that the Brandt treatment does not involve any interruption of one's daily work. It may be that the patient's disease prevents her from attending to her other duties, and prevents her from doing much household work, taking long walks, walking upstairs, etc., but the Brandt treatment imposes no such sacrifices on her; on the contrary, the massage treatment often enables the patient, immediately after its commencement, or, at all events, long before it is finished, to be much more active than before. In fact, many bodily exercises are recommended as furthering the cure.

Hence we shall find it quite natural that the women to be treated come to the masseur's house, where the necessary, but simple preparations have been made. It is only in exceptional cases that the patient is treated in her own home. The morning is generally the best for the proceeding, and a light, not very substantial breakfast should be taken beforehand. The stomach and bowels should be empty, as a preparation for female massage.

The treatment is begun, on any day when circumstances permit, with some of the aforesaid gymnastic exercises, according to the requirements of the case. When they are finished (the strongest exercise is given last, or it may be followed by lighter ones, so as to terminate gradually), there is a tapotement, or knocking of the sacral bones; the patient leans against the back of a chair, now moderately, and now deeply inclined forward, and the masseur knocks, with the fingers of both hands stretched out and kept together, along the vertebral column, more or less strongly, according to the case. Then the sacrum and coccyx themselves are beaten with the loosely-closed fist. A convenient posture for the patient, and smart blows, promote the circulation in the pelvis; a difficult (bending) position for the patient, and light tapping of the sacrum, quicken the pelvic nerves and promote absorption. The position



of the patient and the strength of the application must be determined from these points of view. The patient retains her clothes (with the exception of the bodice) during the beating and the gymnastic exercises.

The masseur now proceeds to the massage proper, of which the preceding Chapter has given a full description as it appears to the patient. The massage itself consists of circular pressing movements, stroking, straining, and raising movements (with the support of the solid parts of the frame or of the opposing second hand), which might be illustrated, but cannot very well be described in words. To these must be added the stretching of shortened parts, the removal of growths, the return of displaced organs to their proper position, the cure of twists of other organs — in a word, a number of processes which must be carefully adapted to the case in hand, and which are all comprised under the common name of internal massage.

There are also certain rather complicated kinds of movements, the lifting or raising of the womb, which must be mentioned. For these the co-operation of two persons is required. Whilst one fixes the neck of the womb through the vagina and controls the movement, the other lifts up the womb from the surface of the pelvis. This operation is especially conducted in cases of displacement of the womb and prolapse of the vagina. It has already been fully described.

When the treatment is over, the patient should rest for some time, generally in the position described above. Then follows another beating of the sacrum, and the proceedings terminate, where it is possible or necessary, with the same gymnastic exercises as at the commencement, only in an inverse order, and then the patient quietly returns home.

So far Dr. Freudenberg. On account of the evil consequences which may follow an improper explanation of this method, I must refrain from giving a more extended description of it here.

The massage of the non-pregnant womb is not suited for domestic use, for which my book is chiefly intended. It must only be practised by professional operators. The mechanical treatment of diseased organs in the female pelvis demands an accurate knowledge of anatomy and sexual diseases, a certain ability in discovering the nature of a disease by touch, requiring a fine sense of touch and much manual dexterity. If it is practised without these qualifications, the massage of the female abdomen would be an uncertain, crude, and possibly dangerous proceeding, for the first law with regard to the massage of the female organs is: Never apply brute force, never cause pain, and conduct the application most carefully. If that rule is observed, the method of treatment will prove most effective in curing obstructions, prolapse of the vagina, bends, twists, prolapse of the womb, displacement of neighbouring organs, &c.; in breaking up swellings (polypi, etc.), relieving chronic catarrh of the womb, and other troubles in the sexual parts.



Fresh, acute cases — cases of recent inflammation of the female organs — must not be treated by this method, as I said in the beginning. It is necessary to suspend the treatment if inflammation sets in during the time; or if sharp pain comes on with slight fever, it must not be resumed until the condition — which it is best to treat with soothing body baths, &c. — has disappeared.

I need not say that both massage and gymnastics are out of place during the menstrual period. It is best to refrain from them a few days before and after the time.

### Massage of the Pregnant Womb.

The great importance which massage and external treatment have had in assisting child-birth from the earliest times, is seen from the fact that this Curative Treatment has been in use as the sole remedy in difficult births amongst the most uncivilized races, and is still in use amongst the savage tribes of Asia, America, &c. This is not suprising, as it is only natural that, in the most important act which the maintenance of the race demands — the birth of the

child — man should employ the simplest and most effective aid which thousands of years of experience have taught him. That is massage, with the assistance of which abnormal births may be rectified in the case of people living according to nature's laws, and the normal birth, by expression, may be induced. Mid-

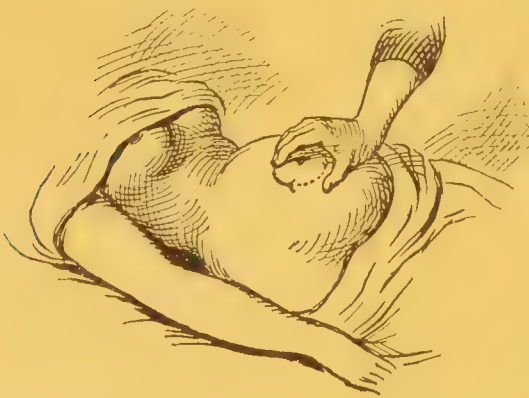


Fig. 208. Massage of the Pregnant Womb.

wives in uncivilized races are so clever in the use of the external manipulation, that many of the diseases of confinement are rarely or never produced. For us civilized folk it was necessary to make a sort of new discovery before this ancient practice of assisting birth could be reinstated. Amongst savages there is never any internal manipulation in assisting birth, and thus all possibility of infection is excluded. On all points where a simple manipulation

is needed, these uncivilized people are far in advance of us.

We now pass to the description of the mechanico-therapeutic method of treatment during accouchement, as it has been introduced in civilized countries in the last ten years, and has made considerable progress. It must be noted, first of all, that the massage during confinement is always dry.

For the purpose of advancing a lingering confinement, it is advisable to rub the region of the womb gently with the finger tips in a circular direction, in the way I have given under the heading of "Massage of the Abdomen," in the first manipulation, and is illustrated by Fig. 208. This causes, by reflex action, a contraction of the womb, and this, as is known, means the pains of child-birth. The skin of the abdomen is used as the medium of the friction, that is to say, you fix it, and then rub with it. Labour is most effectively advanced by this simple expedient, and the act of giving birth is brought to its completion in a harmless, natural way.

According to another, the Kristeller method, when the preceding treatment would not be effective enough, the stroking is combined with kneading — naturally, only of the mildest and most sparing character. The manipulation is accomplished as follows:

"The woman lies on her back, the physician, after bringing the womb as near as possible to the front wall of the abdomen, and stroking aside any parts of the intestines that may lie between, seizes the base of the womb with both hands in such wise that the thumbs grasp the front part, and the hands, directed outward towards the pelvis, grasp the hinder surface as widely as possible. (Fig. 209.) He then endeavours to cause contractions of the womb by gentle friction with his finger tips. When this is done, he proceeds to press (gradually increasing the pressure) downwards for five to eight seconds, labour gradually becoming stronger. After a rest of one to three minutes, the process is repeated ten, twenty, or even forty times." (Reibmayr.)

If it is necessary to use some artificial means in the act of parturition, for furthering the process and accelerating the birth, the above treatment is certainly the most natural, and is calculated to promote and complete the act in a beneficial way. With the manipulation that is shown on Fig. 209, you can obtain a twofold favourable effect. The gentle friction stimulates the contraction of the womb, and the downward

pressure with the hands supports, in a natural way, the bringing forth of the child.

We need hardly explain that the physician who assists at an accouchement will find it more convenient, and a gain in point of time, if, in cases of delayed birth or weak labour,



Fig. 209. The Kristeller method of pressing out in child-birth.

or some other defect, he will always have recourse to this quicker, gentler, more sparing, and quite harmless process of pressing out, instead of extracting the fœtus by the forceps, which is always dangerous for mother and child. It is much to be desired that this simple and effective external massage, in the use of which we are excelled by savage

racés, and which is strongly recommended by many physicians (amongst others by Reibmayr), should take precedence over the internal treatment by means of instruments, in the use of which the danger of infection is never entirely excluded, quite apart from the unnatural and dangerous character of the proceeding.

### Massage of the Womb after Accouchement.

The massage of the womb after accouchement, also called the Credé Treatment, is now very widely practised for the purpose of artificially removing the after-birth and stopping hemorrhage. The Credé method is very similar to the Kristeller (Fig. 209), and consists of the following processes:

The physician lays his whole hand on the region of the bladder, and makes at first gentle stroking movements with it over a small part of the womb, the base of the womb being rubbed in a circular direction with the tips of the fingers of the right hand at the same time. This friction is continued until the commencement of contraction of the womb is felt under the hand. Then the womb is grasped with the outstretched fingers of the right or of both hands; and when he seems to feel that the contractions have reached their

highest point, the physician kneads and presses on the base and walls of the womb in the direction of the coccyx.

The Credé treatment is simple, easy to do, very effective, and in most cases it obviates the insertion of the hand into the womb through the vagina, which the midwives and nurses nearly always do for the purpose of removing the after-birth, and indeed, as I must emphatically protest, in an entirely unnatural fashion. Only ignorance, and the circumstance that time means money for these people, can explain such an unnatural and crude proceeding. In a normal confinement, the after-birth comes of itself after a space of from a few minutes to half-an-hour. People must take their time and wait for it.

Massage is equally helpful and effective in case of hemorrhage from the womb after confinement. In order to prevent hemorrhage, external massage should always be applied after confinement. The womb is kept in a continual state of contraction by the manual treatment, and this causes a contraction of the blood vessels.

"Every midwife," says Dr. Reibmayr, "should at least know how to apply external massage of the womb. As, however, they generally find it difficult to recognise the contour of the relaxed womb, their external massage of the womb usually consists in an unsystematic rubbing of the abdomen, in which the bowels and the bladder are massaged much more than the fundus uteri (base of the womb.)"

The massage of the womb consists, as I said before, only in a gentle, circular friction of the base of the womb. The movement is executed with the tips of the fingers, the wrist resting on the abdomen, so as to serve as point of support to the fingers in their movements. Fig. 208 illustrates the process very clearly, only, after confinement, the massage of the womb must be proportionately deeper and reach lower. It is done, as I said above, only with the dry hand. The tips of the fingers fix the skin of the abdomen, and rub with it. It is always best to rub the base of the womb, as this reacts most strongly on a mechanical treatment.

I have now reached the termination of the remarks I have to offer at present on accouchement. May the practice of massage during child-birth spread more and more, and help to bring the modern practice back into more natural paths. Thousands and thousands of women who die every year from infection, or from the effect of operations for



parturition, would have been saved; an immense number of women, who are condemned to life-long illness from the same cause, would be healthy and strong to-day — a help and support to their husbands and families — if only the process of labour, natural in itself, had been aided and supported by natural means. Only the woman who is sound in mind and body will bring forth strong and healthy children, and be able to rear them successfully. I might almost say — on the health of the mother depend the health and the entire future of the race.

## 21. Massage of the Breast.

The organs of the pectoral (or breast) cavity (the lungs and heart) are precluded from any direct mechanical influence of massage by the bones of the chest. Hence massage of the breast takes the form of reflex actions — stroking, pressing, and tapping, the latter either with the flat hand or the fist (Fig. 180).

Vibration and shaking are also applied for the purpose of acting indirectly on the heart and lungs. In cases of emphysema of the lungs, asthma, acute and chronic pleurisy, deposits on the pleura, and inflammation of the lungs, it is advisable to massage the chest from the breast-bone outwards, beginning above, and stroking towards the back, along the intercostal muscles, with the hands laid on flat, and with a gradually increasing pressure, and descending by degrees as far as the pit of the stomach. When the stroking of the breast is finished, the back should be stroked in the same way, proceeding outwards from the spinal column with the hands. The patient should take deep inspirations during both proceedings. Sometimes also vigorous local pressure on the region of the heart will be found soothing in cases of neuralgic trouble; still it is best, and most advisable, to have recourse to massage of the back, neck, and abdomen, in cases where you want to act by mechanico-therapeutic means on the internal organs of the breast.

## 22. Massage of the Back.

The massage of the back is mainly confined to stroking, kneading, knocking, pinching, and hacking. The back is

stroked either downwards or upwards, as is illustrated in Figs. 159, 160, or else the thumb is merely passed along the spinal column. The intercostal muscles of the lower part of the chest are stroked outwards from the spinal column, along the line of the ribs, towards the breast, with a gradually increasing pressure, the patient lying on his breast and putting his arms over his head. The stroking of the kidneys (Fig. 158) is also done outwards from the spinal column, parallel to the ribs, towards the flanks, the pressure being gradually increased.

Beating, clapping (Fig. 182) and hacking (Fig. 185), may be applied to any of the muscles of this part. Kneading and pinching (Fig. 170) must always have a downward direction, and from the sides towards the spinal column. The loins and buttocks also must always be massaged downwards. These parts may be stroked, kneaded, or smacked. Even the so-called "comb-grip" (Fig. 161) is used in massage of the back.

### 23. Massage of the Arms and Legs.

In the massage of the arms and legs, all the manipulations are employed, as the extremities may be subjected to a more thorough treatment on account of their stronger development. That does not mean, however, that from the very beginning — at the first sitting — all the processes are to be applied. On the contrary, it is best as a rule — and this applies to the "working" of other parts of the treatment — to begin with gentle stroking, to proceed to kneading at the second or third sitting, and so on, until at last you can apply, in one sitting, all the manipulations that the constitution of the patient and the form of his disease recommend.

The arms or legs to be massaged are either placed horizontally, or raised up (Figs. 155 and 156), and the stroking begins from the wrist (or ankle) in the way I described on p. 652. Hence the stroking is in the direction of the shoulder (or the buttocks), with occasional pauses, and is done with the flat of the hands, the eminences of the hands, with several fingers, or with the thumb alone, according to the form and size of the member in question; the more vigorous stroking is done on the inner or bending

side of the limb, as it is here that the larger veins and lymph vessels are found.

If it is a question of curing varicose veins in the lower part of the leg, by breaking up and reabsorption, you begin with centripetal stroking and kneading of the thigh, near the joint, so as to make room for the coming venous blood and lymph. Then the hands are brought downwards a second time — the third time, perhaps, above the knee — and all further stroking and kneading is begun lower down, within a short distance of the inflamed or swollen part. In this way we avoid an obstruction of the blood in stroking back, and an increase of the swelling of the vein.

The fingers are stroked with the fingers, in which they are grasped, and the back or the palm of the hand with the fingers and thumb. The back of the foot is stroked with the two thumbs, from the toes up to the ankle, the whole foot being grasped with both hands.

The rubbing of the extremities is also done towards the centre (Fig. 162). This process — either centripetal or circular rubbing — is especially applied to joints which have shown signs of hardening or swelling in the sheaths of the tendons, or in the tissue of the muscles, having swollen lymph glands, or being stiff (Fig. 163). Otherwise the process of rubbing the arm should begin at the finger-joints, pass on to the middle of the hand and then to its base, then to the wrist, elbow, and shoulder in succession, and finish up at the clavicle. The joints of the feet and legs are treated in the same manner. Even the tendons of the foot and calf may be rubbed, but the tendon Achilles (see the note to p. 688) should only be kneaded or pounded. It is useful to combine more or less vigorous pressure with this friction (Figs. 172, 175).

The kneading of the arm extends from the ball of the finger to the muscles of the lower and the upper part of the arm. Special attention should be paid in kneading to what is called the deltoid muscle\* and the biceps, or flexor muscle of the fore-arm (Fig. 164). The muscles of the leg are also kneaded in an upward direction, first the Achilles tendon and the muscles of the calf (Fig. 166), then the flexor muscle of the lower part of the leg, and afterwards the

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\* See under "Muscles," in the Index.

large muscles of the buttocks (Fig. 165); the latter, like the deltoid muscle, require a particularly vigorous treatment.

Kneading is followed by the pounding of the extremities (Fig. 167), pinching (Figs. 169 and 171) and pushing (Fig. 176). In treating the muscles of the buttocks, it is necessary to use the knuckles (Fig. 175) and the fist frequently. Finally, there is the hacking, which is done with the cut or edge of the hand on all the larger muscles and groups of muscles of the extremities (Fig. 184), but with the edge of the fingers only on the smaller muscles of the hand (Fig. 183), and with the finger on the joints, tendons and bones, and on swellings or dislocations in the extremities.



Fig. 210. Circular Motion of the Arms, lying at full length.

Analogously to the use of gynæcological and abdominal massage, the massage of the arms and legs is also frequently combined with some of the passive and resistance exercises of hygienic gymnastics. To select from the many exercises a few that are suitable for completing the preceding massage, I may mention, first of all, the "circular" motion of the arms whilst lying at full length (Fig. 210), which is most suitable for this purpose. This is called a passive exercise. The patient lies on a massage bench; the masseur stands behind him, and makes small circular movements with the outstretched arms of the patient. These movements may be executed



five to eight times in succession, and serve not only to strengthen the muscles of the arms, but also to increase the



Fig. 211. Turning the Feet. The body is in a reclining position.

circulation and invigorate the respiratory organs. Care must be taken, however, that the breath is taken in during the outward motion (Fig. 210), and expelled during the inward motion of the arms.

The "turning of the feet," whilst in a reclining posture (Fig. 211), is an admirable exercise for curing stiffness of the ankle joint,

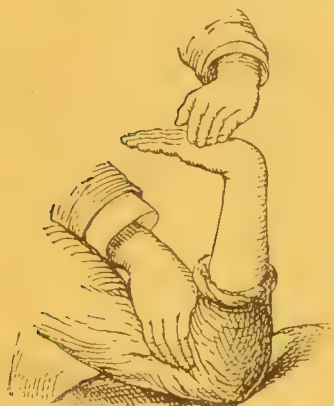


Fig. 212. Bending and Stretching the Hand.

or for strengthening the ankle, and is also a passive exercise. The foot is turned on its own long axis, its outer and inner edges being alternately raised and lowered. The exercise especially brings into action the front and back muscles of the lower part of the leg and the muscles of the thigh. The patient is in a reclining position, on a folded massage bench with a high back. The masseur stands or sits in front of the patient's feet, takes both of them by the toes,

and turns them six to ten times outwards, and the same number of times inwards in a circular direction.

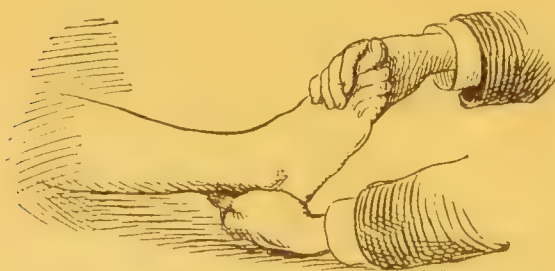


Fig. 213. Stretching the Foot. The body is in a reclining position.

The "bending and stretching of the hand" (Fig. 212) is a resistance exercise, and serves to strengthen the extensor and flexor muscles of the forearm. The patient supports himself with his elbows on a cushion, bends his

hand to a right angle, and stretches it out vertically, whilst the masseur resists the movement, laying his hand on the

back of the patient's hand. The masseur then presses the hand back to its original position, the patient resisting. This exercise strengthens the extensor muscle. To strengthen the flexor muscle the masseur lays his hand on the palm of the patient's hand, and presses it in an upward direction, the patient resisting; then the patient brings it back to the original position, the masseur resisting.

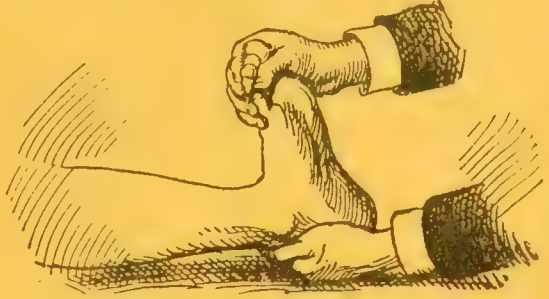


Fig. 214. Bending the foot. The body is in a half-reclining position.

"Bending and stretching the foot" (Figs. 213 and 214) in a reclining position are

resistance exercises, which serve not only to increase the suppleness of the ankle, but are also beneficial for curing cold feet. They are so simple, that further description is unnecessary.

## 24. General Massage of the Body.

General massage is resorted to in various diseases of the entire system, and is on the whole done in the same way as the partial manipulations we have described in the preceding Chapters. However, it would take too long and would exhaust the patient too much to carry out the massage of each separate part in succession in the way it is done in partial or local treatment. Hence, only the larger and more important parts of the system are treated, and the treatment is mainly confined to stroking, kneading, pounding and beating.

The order of the different manipulations is subject to a great number of modifications.

According to Dr. Preller, you begin with a beating of the whole body, only stripping it at the parts which are to be beaten. You beat with the flat of the hand or the fist, according to the size and richness in muscle of the part in question, or you hack with the edge of the hand or of the fingers. In this way the arms, neck, back, breast, loins, and finally the legs, are treated. The head, front part of the

neck, and the abdomen, are not to be subjected to this treatment. Then follow stroking and kneading. The order in which the members are to be treated remains the same. Neck, breast, back, loins, legs and feet are taken successively. The treatment generally winds up with a thorough massage of the abdomen.

According to Mitchell, who recommends general massage for debility of the nerves and hysteria, it is accomplished as follows:\*

"You begin at the feet, the patient lying in bed. Take hold of the skin, gently but firmly, roll it lightly between the fingers, and go cautiously over the whole foot. Then the toes are bent and moved in every direction; afterwards, the smaller muscles of the feet are kneaded with the thumb and fingers, and the group of interosseous muscles are worked between the bones with the finger tips. Then the whole structure of the foot is grasped with both hands, and rather firmly turned over. The joints are then treated in the same way, all the spaces between them being searched and kneaded, and the articulations themselves being worked into all possible positions. Finally, the whole leg is taken in hand; first the skin, then, by grasping it deeper, the cellular tissue of the under-skin, and at length, by deeper and more frequent pinching, the larger muscles, which are brought into a position rendering them as tense as possible for the purpose. The grip of the muscles must be strong and firm. In the case of the large muscles of the calf, the thigh, and the upper part of the arm, where the muscles are similarly twined round the bones, both hands must be brought into play, contracting alternately on the muscles. (See Fig. 164.) In handling the large muscles on the front of the leg, the fingers or the thumbs must roll the muscle under the balls of the finger tips.

"When the space is small the masseur grasps the limb with both hands, and passes his grip dexterously upwards, as if endeavouring to promote the flow of blood in the veins, and then turns back to knead the muscles. The same process is then carried out in every part of the body. Particular care must be paid to the muscles of the loins and spinal column."

General massage is followed either by passive exercise

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\* Taken from Reibmayr.

of almost all the joints, or by some of the resistance movements. It is particularly effective after taking a vapour bath or a warm slipper bath. The duration of the whole proceeding varies from a quarter to three-quarters of an hour, the treatment being taken once a day. It is not the aim of a general massage to break up and absorb morbid deposits, but merely to accelerate the circulation of the blood and the lymph, and to strengthen the muscles by systematic stroking, kneading, and hacking, in combination with the subsequent gymnastics. Hence general massage is a very important and effective element in a "Strengthening Treatment." (See Chap. 30, Part I.)

## 25. Massage by means of Appliances.

Even in ancient times certain appliances were used in administering massage. We learn from ancient writings, that in Pergamos, where there was a famous temple of Æsculapius, they used not only their hands, but also a certain appliance, a sort of comb, called a xystra, in order to increase the effect of the massage. The Chinese and Japanese have used appliances for massage for many centuries. In our days we have only to deal with instruments which offer a substitute for the human hand, not only in order to make the mechanical treatment more thorough, and consequently more effective, but also in order to prevent the masseur from tiring too quickly. These appliances are also useful for enabling the patient to treat himself — this is an advantage which I value above all others. Finally, when one has to choose between an unskilled or inexperienced masseur and a massage that is applied by oneself with the aid of appliances which are accurately adapted to the outlines of our various organs, there should not be a moment's hesitation in making the choice.

A simple and much-used appliance for giving a vigorous and effective effleurage is the so-called "back rubber" (Figs. 28 and 30). It is useful in cases of neuralgia in the back, muscular rheumatism, lumbago, etc.

Tapotement (tapping) is done with the "muscle beater." The appliance consists, as is seen in Fig. 215, of three india-rubber tubes, which are provided with a handle. It may be used for any muscles in the body, and is subject to a



considerable number of modifications, from the most gentle to the most vigorous beating. The muscle beater enables the patient to treat any part of his body without the aid of a masseur. The movement comes from the wrist. The arms and legs are generally beaten vigorously; the breast, back, neck and abdomen more gently. The proceeding is usually only continued until there is a feeling of warmth in the skin. In the opinion of its inventor the beating is most effective in the morning after a wash. It should not last more than ten minutes, with occasional rests of two to three minutes. It is useful in cases of chronic cold feet and hands, debility of the muscles, rheumatism, gout, paralysis of one side, etc., and in general for curing diseases which are chiefly caused



Fig. 215. The Mager "Muscle Beater."

by obstructions of the humours and the blood.

The "muscle-hammer" (Fig. 216) is also used for tapotement, and corresponds to beating with the finger tips or the edge of the hand, according as the instrument is used gently or vigorously. If the massage is administered by a second person



Fig. 216. The Mager "Muscle Hammer."

(masseur), it is best for him to use two hammers, with

which he can either beat two corresponding parts of the body at the same time, or one larger part. The blows are given quickly — as in beating a drum — care being taken that bony protuberances covered with skin should not be struck. The movement comes from the wrist. If it is a question of acting energetically and strongly on one part of the body, the two hammers are brought to bear on it in brisk succession.

For replacing different manipulations in stroking, rollers are used. The "milling-roller" (Fig. 217) corresponds to stroking with the closed flat of the hand; the "ball-roller" (Fig. 218) replaces stroking with the knuckles of the loosely-closed hand; the "comb-roller" (Fig. 219) replaces stroking with the knuckles of the tightly-closed hand; the "rod-roller" (220) stroking with the edge of the outstretched fingers; and the "toothed-roller" (Fig. 221) stroking with the finger tips.

The effect of these instruments can be modified according to the pressure applied. There are also a number of other

instruments, such as the "finger-roller," the "spinal-roller," the "plush-mill," the "pressure-mill," the "hooped-mill," the "rod mill" — all invented and constructed by the able manufacturer Mager, which are used in general massage to finish the process more quickly. However, it would take me far beyond the limits of the present work to describe them all here. For the same reason, I am compelled to forego the description of what is called "electric massage," in which the electrodes have the form of various ordinary massage instruments, and also the massage by machinery, which has been elaborated by a Dr. Zander, of Stockholm. With regard to the latter, however,

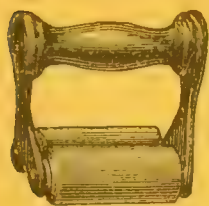


Fig. 217. The Mager "milling-roller."



Fig. 218. The Mager "ball-roller."

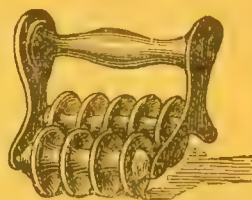


Fig. 219. The Mager "comb-roller."



Fig. 220. The Mager "rod-roller."

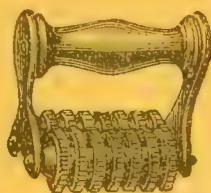


Fig. 221. The Mager "toothed-roller."

I will satisfy the reader's thirst for information to the extent of telling him what it consists in. The Zander apparatus and appliances are very complicated, and are set in motion by a number of straps, wheels and shafts, which are hidden in the massage room, out of sight of the patient, being partly under the floor and partly in boxes and cylinders, and which are in communication with an engine. By clever contrivances, for instance, the switch of a shaft, the machinery can be stopped at any moment. There are machines for kneading, rubbing, beating, vibrating, hacking, pounding, etc. As machinery has gradually ousted hand-labour in industry, so it is also, as we see, beginning to do

in the province of mechanico-therapeutics. Still, just as hand-work is always preferred, in point of solidity and excellence, in commerce, so manual massage cannot be properly replaced by any machines, however clever, because there is no instrument in the world that can adapt itself so intimately to the contour of the body as the human hand, or that can modify its action so perfectly in respect of time and force under the guidance of its owner.

## 26. Important General Observations on Massage.

In order to complete the technical directions given in Chap. 3, Sec. VII., I shall give the following general rules:

Never massage parts of the body on which there is clothing. The massage of the abdomen is an exception, so that the feelings of the patient may be spared. There is, as Reibmayr very rightly says, no more sympathetic feeling for the human skin than that caused by the touch of another warm, fine, elastic, healthy human skin. Always, therefore, massage on the bare skin.

Massage must never be given in a feverish condition, nor in acute illnesses, certain forms of chronic eczema, cases of deep ulceration, inflammation of the abdominal organs, in any disease that depends on local or general infection, and is accompanied by inflammation and suppuration, and, in general, in all those morbid conditions in which the system is endeavouring to get rid of morbid matter by suppuration, and so there would be a danger of withdrawing the purulent matter once more into the lymph current.\*

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\* Dr. Ritterfeld-Confeld expresses himself as follows on the various kinds of disease for which massage is to be recommended:

"In the first place, there are the troubles which may be directly reached by the hand of the masseur — external diseases, like those of the skin, muscles and tendons, nerves and nerve-sheaths, joints, ligaments, capsular ligaments, etc. To this category belong a great number of morbid discharges and exudations, watery, blood-watery, bloody, and inflammatory (dropsical, serous, hemorrhagic) infiltration in the skin and the cellular tissue, the muscles and tendon sheaths, the ligaments and nerve sheaths, etc., resulting from mechanical injury, or what are called traumatic causes, such as squeezing, twists, breakages and displacements (contusion, distortion, fracture, luxation), and also from the effect of gout and rheumatism, etc. These morbid symptoms lead to condensation, induration of the tissues, inflamed growths, excrescences, malformations, contractions, scars, etc. Further, there are diseases of the skin and painful rheumatic deposits due to infiltration, growths in the sheaths of

As to the starting-point in massage which will be found most convenient for the patient and masseur, the following must be observed: For massage of the head, neck and throat, the patient sits upright, and the masseur stands before him in the first part, behind in the second, and before or behind in the third. When an arm is being treated, the patient sits down and lays the arm in question about as high as his shoulder on some soft surface, best of all,

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the tendons, connective tissue, the ligaments, and the muscular tissue; so-called ganglia in the tendon sheaths, etc.

In the case of fracture or dislocation of bones, the first thing to be done is very often to get rid of the infiltration that is caused as quickly as possible, and to prevent too great a loss of callosity of the bone at the fractured spot. Massage is the best means of doing this, also of curing the disturbance of the nutrition of the diseased limb on account of its long inactivity; and, in fine, it is very useful for the after-treatment of these diseases.

The massage treatment has a great advantage in the case of disease of the nerves and muscles. A great number of nervous diseases, which arise from the most varied sources, and manifest themselves in all parts of the sensory and motor nerves, as in the nervous regions of the upper and lower extremities, the arms (brachial neuralgia), the upper and lower parts of the leg (sciatica), in the course of the nerves of the neck, throat, shoulder, arms, fingers, hands, in the head and face (hemicrania, faceache, etc.), neuralgia and convulsive movements of the upper and lower nerves of the eye cavity.

Pains in the various joints, so-called neurosis of the joints.

Paralysis and semi-paralysis (paresis) of all kinds; and various cramps (writer's cramp, pianoforte-player's cramp, St. Vitus' dance, etc.).

Diseases of the muscles, especially muscular rheumatism of all varieties and in all parts of the system; lumbago, stiff neck, partial rheumatic paralysis, and semi-paralysis of the muscles; twisted neck, progressive atrophy of the muscles, general and partial muscular debility and its consequences, deformities, contractions, etc.

Diseases of the joints form a large category for treatment by massage. These diseases, which are partly of rheumatic, traumatic, or dyscratic origin, appear in the most diverse forms, according as one or other of the tissues of the joint is affected. To these must be referred the after-diseases that are due to different kinds of exudation — dropsical, serous, sero-fibrous, and sanguinary exudations (hyarthros, hæmarthros, etc.); inflammation of the inner capsule of the joint (synovial membrane), synovitis, and spongy or fungous synovitis. Then there is the synovial affection that is caused by long inactivity of the diseased joint, or growths in the neighbourhood of the joint after severe inflammation. Many diseases of the glands, chronic inflammation and consequent swelling of the lymph glands, the pressure of which on the sensory and motor nerves lying in their vicinity causes extreme pain and irregularity of movement. Massage has recently been applied also in cases of acute catarrh of the larynx and bronchi, with great success. It is not necessary to dilate further on the diseases which benefit by the application of massage, as this would take us beyond the limits of the present work. But in the case of the diseases we have enumerated, the massage treatment has proved its value, and has won its place in the treasury of



on a small massage table, which can be adjusted to the proper height. The masseur stands at his side. For massage of the legs the patient lies down on a massage bench, on his back, side, or breast. Arms and legs may be elevated a little instead of having a horizontal position. If there is question of kneading, pounding, or beating the extremities, it is best to let them lie free, so that they are convenient to grasp from every side. The hand of the arm to be treated is in that case allowed to grasp some object, without any strain or exertion, and the masseur stands before or behind the arm to massage it. The leg is taken by the masseur on his knees (the patient sitting down), that is, on the lower part of the front surface of his thighs. He sits sideways before the patient in that case.

For massage of the abdomen, the patient lies on his back, the legs being slightly apart and drawn up a little: for massage of the back, the patient lies on his breast, laying his forehead on his arm, which is bent under it.

Massage is most quickly and surely successful in cases where it is assisted by the previous use of the other natural health factors.

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## VIII.

### Hygienic Gymnastics and their Use.

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#### 1. Introductory.

Hygienic gymnastics, like massage, occupy an important position in the modern treatment of disease, for there

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health, as is recognised by the leading physicians and clinical professors. We shall only observe that a large number of internal, and especially chronic diseases of the abdominal and pectoral organs, such as obstructions in the partial circulation, the liver, the intestinal tube, etc. (*plethora abdominalis*), and the hemorrhoidal symptoms and varicose troubles in the veins connected therewith, as well as many kinds of bladder disease, may be successfully treated with massage. Amongst chest diseases, the enlargement of the cells of the lungs (*emphysema pulmonum*), and the asthma that results from it, are favourable objects for treatment by massage; also chronic catarrh, debility of the chest, and weakly-developed muscles of the chest. In these cases, as I said above, hygienic gymnastics may be usefully combined with massage, and the masseur will thus be enabled to stimulate the diseased organs beneficially in every way."

is only a comparatively small number of diseases for the cure of which massage alone is sufficient. Hence, for the cure of a certain number of ailments, hygienic gymnastics must be combined with massage, and the massage manipulations must frequently precede it in order to remedy obstructions in the blood or lymph circulation, to break up and prepare for absorption, to a certain extent, new growths and exudations, and to stimulate the functions of the skin, nerves, muscles, glands, etc., before hygienic gymnastics, with its active, passive, and resistance exercises can act effectually. In many cases, on the other hand, the gymnastic exercises must go first, in order to ensure a better effect from the subsequent massage.

The chief aim of gymnastic exercises, after massage, is in the main to support the acceleration of the current of the lymph and blood which has been effected by the massage, and to promote the absorption of morbid products that has already begun. In cases of disease of the joints and neighbouring structures, the nerves and muscles, and in all cases of constitutional disease, where it is necessary to improve the constitution and circulation of the blood, strengthen the action of the heart, stimulate the function of the bowels, and of all the other excretory organs, the gymnastic exercises, either alone or in conjunction with massage, are of very great service.

In order to understand the action of methodical exercise on the body and its various members, it will not be superfluous to first take a lesson in physiology.

Physiology teaches that more blood flows to the muscle when it is active than when it is at rest, and that consequently the metabolism is increased in it. The researches of physiologists have proved that the muscular apparatus and the nervous system (peripheral or central) on the one hand, and the muscular apparatus and the osseous system on the other hand, are intimately related to each other in respect of development and nutrition and their entire functions. The activity of the muscles especially influences the circulatory apparatus, the function of the heart, the respiration, metabolism, and the whole of the physiological machinery in general. With regard to the close connection between the muscles and the nerves, we must mention the fact that the exercise of the muscles involves to some extent the exercise of the nerves. Hence a great importance attaches to

the remark of Professor Birch-Hirschfeld, that the condition of the muscles is of extreme significance in the feeling of self-consciousness. The consciousness of having a strong and well-exercised muscular system inspires courage and self-reliance. The feelings which arise from neglected, weak, or diseased muscles, cause lassitude, timidity, and cowardice. Hence it is not surprising that the disease of our time — nervous debility — with its conspicuous feature of weakness, its hundred-fold symptoms, its abnormal irritability and rapid fatigue, is especially found in people of weak muscles, and, indeed, in a worse degree, the more other parts of the body have been disproportionately exerted, instead of the parts of the nervous system that are destined for purposes of motion, as is unfortunately so frequently the case in the present unnatural conditions of education and employment.

In exercising the muscles methodically, the nerves are extended, and consequently certain kinds of gymnastic exercises serve the purpose of extending the nerves in a healthy way, and of curing a large number of nervous diseases, etc.

In the Swedish hygienic gymnastics a distinction is drawn, first of all, between exercises that attract and those that take away blood. A methodical movement that brings blood to one organ, is, at the same time, relieving some other distant organ of it; hence, every exercise taken in a certain way attracts the blood to one organ and takes it away from another. In this we have the general indication for one or other exercise.

The different kinds of exercises are divided into three classes:

1. Simple active exercises.
2. Complex active or resistance exercises.
3. Passive exercises.

The active exercises are taken by the patient alone, according to the directions given. The large category of ordinary gymnastic exercises comes under this head. The various starting-points (standing, lying, sitting, kneeling, hanging) enable us to set in motion certain groups of muscles by themselves, and we may also act beneficially on particular joints by means of them.

The complex active exercises, or the resistance exercises, have the following features: The contraction of certain

groups of muscles on the part of the patient is either opposed by an external force, offering a more or less powerful resistance, or else this external force endeavours to effect the contraction of a muscle by pressing against it (with varying degree of power), or to overcome it, and this effect is caused by a certain position or attitude which the patient has taken up and seeks to maintain.

This external force may be either the living, human force of the masseur or assistant, or the force of gravitation, as applied by gymnastic apparatus or simple contrivances. The action of these apparatus, called resistance apparatus, depends on the physical laws of the lever and the roller, a weight of a certain strength offering resistance to the active movements of the patient by pulling or pressing. We have the Zander apparatus, the Mager resistance apparatus, and so on.\* Amongst simpler contrivances, we have only to notice those which increase the work of the muscles, as, for instance, dumb bells, Indian clubs, etc.

A resistance apparatus, which serves to exercise and strengthen the muscles, brace up the nerves, invigorate the lungs, and expand the chest, and has great advantages, is the "arm and chest strengthener," which has been invented by a school inspector of Basle, Largiardèr (Figs. 222 & 223). This ingenious apparatus has the special advantage of being in several parts. On a strong hempen rope, running between two polished handles, are a number of iron discs, joined together, but separable. If children or delicate people are to use the apparatus, a number of these discs are taken off, according to the modification desired, and the exercise may be taken with, perhaps, only one or two discs at each side. (Fig. 222). A strong person may use the apparatus with

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\* The overcoming of the resistance that is made by these appliances is preferable to the resistance offered by an assistant, in the sense that the graduation of the force of the resistance can be more accurately controlled in the machine. Mager, of Hofheim, has constructed a number of such appliances, each of which brings into play a certain group of muscles when it is used. There is a "leg stretcher" and "leg bender," a "mounting apparatus," as a substitute for mountaineering; a "rowing apparatus," a "cycling apparatus," and various other resistance apparatus. The machines are ingeniously constructed, easy to manage, not too dear, and have been recommended by distinguished physicians. It will be useful for the reader to have this brief reference to the Mager resistance apparatus, in case he thinks of obtaining some such machine. Illustrated price lists will be forwarded gratis by the inventor, on application.



its full weight on (Fig. 223). Thus the apparatus can be adapted to any constitution, age, or strength. You begin with light exercise, and pass on gradually to severer ones. The way of using the apparatus is simple. Draw the handles, which are held horizontally in front of the chest, away from each other. The weights then rise from the ground, and it is only a question of overcoming their resistance.

The chief importance of the apparatus lies in its effect on the respiratory organs. The constant, methodical use of it causes a ventilation of the apices of the lungs, a process



Fig. 222. The "Largiardèr" Arm and Chest Strengthenener. (Lifting.)



Fig. 223. The "Largiardèr" Arm and Chest Strengthenener. (Lowering backwards.)

which is the more necessary for these parts, as the ruinous sedentary life in offices, warehouses, shops and work rooms, in an atmosphere that is poisoned by exhalations and miasmata of all kinds, causes a stagnation at the points of the lungs, and so condemns them to inaction.

Methodical use of the "Largiardèr" apparatus, for three to six months, has been known to expand the chest by three inches. It is therefore a great boon in the case of small and narrow chests.

Under the passive exercises are comprised bending, stretching, rolling (turning) or shaking movements, which are effected by an external force, human or mechanical, the patient remaining quite passive, and the muscles of his whole

body being in perfect repose. Likewise movements which are effected by any of the joints, with its centre as the turning point, the above conditions being observed, belong to the category of passive exercises.

Whilst the simple and complex active exercises have an effect mainly on the muscular system, and, as I said above, on the nutrition, the metabolism and the heat-production of the muscles, the passive exercises, on the other hand, chiefly affect the joints, and have their chief effect in and through these. Physiological and anatomical research has proved that the movement of a joint acts as an absorbent and pressure pump for the venous blood and the lymph, and that, in accelerating the flow of the lymph, it also causes an increased discharge of lymph from the tissues into the lymphatics, and an increased production of lymph in the tissues. Hence the movements of the joints are not only extremely important for the nourishment of the surrounding fleshy parts, the bones that form the joint, the muscles and the ligaments, but they have also a curative effect in diseases where the mobility of the joints is itself affected or altogether impeded.

The limits which I have imposed on myself in composing this work compel me to forego any exhaustive description of the method of treatment by hygienic gymnastics, especially by passive and resistance exercises. In so far as several of the exercises of these two classes are combined with a preceding massage treatment, I have spoken of them in Sec. VII., in the Chapters on "Massage of the Head," "Massage of the Neck," "Massage of the Abdomen," and "Massage of the Arms and Legs." On the other hand, the simple active exercises will be more fully described in the following Chapter, as they are very easy to adopt, and may be practised under any circumstances. They require neither the aid of a second person, nor of expensive apparatus or instruments.

## 2. The Simple Active Exercises of Hygienic Gymnastics.

These exercises are divided, as I said above, into five different categories, according to the position adopted — standing, lying, sitting, kneeling, and hanging. Still, we shall

confine ourselves in the present Chapter to the standing exercises, only in two cases dealing with those in a lying position. We shall, in other words, treat of the exercises which involve the muscles that move the members of the entire body, and which are the typical forms of the manifold movements of daily life and work.

### Exercises for the Muscles of the Head, Neck, Shoulder, Arm and Hand.

The "turning of the head to the right and left" (Fig. 224), and the "circular movement of the head to the right and left" (Fig. 225), are exercises that remove stiffness of the neck-joint, strengthen the muscles of the throat and neck, and help to cure paralysis of the same.



Fig. 224. Turning the Head to the Right and Left (5—10 times each way).



Fig. 225. Circular Movement of the Head to the Right and Left (5—10—15 times each way).

For filling the uppermost part of the lungs (the apex), in the beginning of consumption, which very often commences in the apices of the lungs, and in cases of paralysis of the elevating muscles of the shoulder, it is useful to take the exercise of "raising the shoulders" (Fig. 226). The two shoulders are strongly raised together, and then gently

lowered, so as not to shake the system too much in repeating the exercise.

If the shoulders have an abnormal height in consequence of the loading of one or the other side of the body with foreign matter, the exercise is only taken with one shoulder — the lower one.

In cases where the respiratory movement is unequal on the two sides of the chest (owing to morbid growths, remaining after disease of the organs of one side of the chest, or to paralysis of the respiratory muscles on one side, or a structural defect in the chest, etc.), where, in other words, one lung does more work than the other, it will be useful to take the exercise of "unequal deep breathing," as shown in Figs. 227 and 228. The flat hand is raised as high as possible, and pressed strongly against the ribs

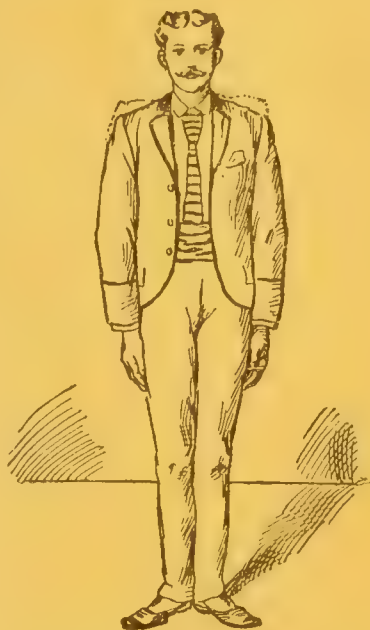


Fig. 226. Raising the Shoulders. (14—25—40 times).



Fig. 227. Breathing deeply on one side. (On the right.)



Fig. 228. Breathing deeply on one side. (On the left.)



under the armpit of the normally-breathing side, and the other arm on the side of the abnormal half of the chest is placed on the head. The healthy lung is restricted in its function by this manipulation, and the other one is stimulated to a proportionately stronger respiration.

In this position you breathe deeply, slowly, and steadily, four, six, or even eight times in succession, and at the moment of drawing in the breath you apply a certain amount of strong pressure to the ribs with the hand under the armpit. This exercise may be taken with great benefit two or three times a day.



Fig. 229. Circular Stick Movement (6—10 times backwards and forwards).



Fig. 230. Walking with a Stick Through the Arms (3—10 minutes).

In order to complete the effect of this stimulation of the respiratory process, and also to give freedom to the shoulder joint, the exercise may be followed up with the exercise of "circular stick movement" (Fig. 229). This exercise also gives a useful stimulus to the abdominal functions at the same time. For it you need a round stick, which should be long enough to reach from the ground to the patient's armpits. You take the stick in both hands near the ends, the hand being above the stick, and carry it



Fig. 231. Bending the  
Elbows back  
(3—5—10 times).



Fig. 232. Stretching the  
Arms downwards at the  
back, with the hands  
closed (3—5—10 times).



Fig 233. Thrusting the  
Arms upwards  
(3 5 10 times).



Fig. 234. Thrusting the  
arms forward  
(5—10—20 times).

in a circle over your head down as far as the seat, the arms — which is important — being kept stiff at the elbows; then the stick is brought back to its original position.

For the purpose of acquiring a straight, "smart" figure, the stick is thrust through the arms, which are bent at a right angle and pushed vigorously backwards, and then the patient walks sharply backwards and forwards, with the chest thrown out (Fig. 230). Great care must be taken that the arms are held firmly back and the shoulders lowered.

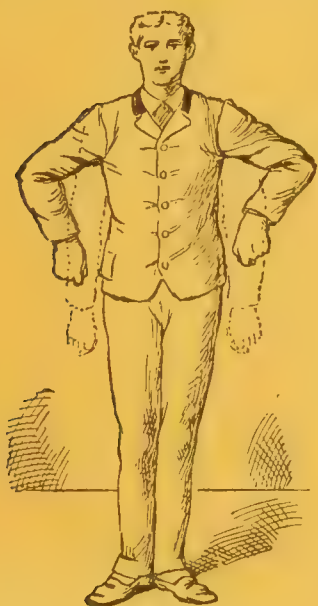


Fig. 235. Thrusting the Arms downwards (5—10—20 times).



Fig. 236. Thrusting the Arms backwards (3—5—10 times).

The exercises illustrated on Figs. 231 and 232 serve the same purpose — the improvement of the form and figure. They expand the chest, promote respiration, and cure relaxation or paralysis of the posterior muscles of the shoulders.

In taking the exercise depicted in Fig. 231, the hands are planted firmly on the hips, the arms pressed down, and then the elbows brought as close as possible together. The back is kept straight. The breath must be drawn in at the moment the arms are pressed back. The exercise shown in Fig. 232 is taken as follows: Standing perfectly upright,

the hands are firmly linked on the back and the arms stretched out until the elbows are straight, when the breath is expelled.

The exercises depicted on Figs. 233—238 are so simple, that they need no further description. They are done with the fist firmly closed, and the muscles of the arms tense and strained. In stretching the arms, too violent a shaking of the body must be avoided. These exercises serve to strengthen the muscles of the arms, especially the extensor and flexor muscles of the fore-arm, to give freedom to the shoulder and elbow joints, and to cure rheumatic or neuralgic trouble in the respective muscles.

The "circular movement of the arms" (Fig. 239) is an exercise that combines a strengthening action on the respiratory organs with a mobility of the shoulder joint. Both arms — stretched out stiffly — describe a wide circle, as vertical as possible, from the front to the back. After three or five turns you take a short rest, and then repeat the exercise the same number of times, from back to

front. Care must be taken that the arms do not go near the



Fig. 237. Thrusting the Arms outwards (5—10—20 times).



Fig. 238. Thrusting the Arms outwards with dumb bells (3—5—10 times).





Fig. 239. Circular Movement of the Arms (5—10—15 times).



Fig. 240. Raising the Arms sideways (5—10—20 times).

head. The muscles of the shoulder, and those that lie round the chest, are strengthened by this exercise, hence it is especially useful in cases of paralysis of these groups of muscles. It is also very beneficial in cases of diseases of the breast (asthma, pulmonary tuberculosis, etc.), which are due to malformations of the chest, and for improving the action of the respiratory organs. The exercise shown in Fig. 240, "raising the arm sideways," also acts as a favourable stimulus to the respiratory process, and is useful in cases of asthmatic trouble, and of attachment of the pleura in consequence of inflammation.

The lifting muscles of the arm and the muscles at the side of the neck are especially brought into play in this exercise. To take it, the arms are raised up high in a straight, lateral direction, the elbows remain stretched out. "Throwing the arms together" (Fig. 241), and "Throwing the arms apart" (Fig. 242) constitute exercises which call into play alternately the anterior muscles of the chest and the back muscles of the shoulders, and at the same time expand now the front and now the back wall of the chest. The arms are opened,

stretched, and vigorously thrown together and asunder in a horizontal position. Care must be taken that the hands do not strike in bringing the arms together.

The exercise shown on Fig. 243, "rolling the arms," is done in much the same way as if you were boring a hole in a wall with your hand, the arm being stretched out; the "8-Movement," shown on Fig. 244, is done as if you were tracing the figure 8 lengthways ( $\infty$ ) in the air. The "bending and stretching of the fingers" (Fig. 245) is done by spreading out wide all the fingers at once, stretching them, and then drawing them together into a fist. These three exercises (Figs. 243 to 245) give freedom to all the joints of the arms, hands, and fingers, and so are well adapted to cure cramp-like diseases of these extremities, as, for instance, writer's cramp, or incipient gouty contractions of the wrist or finger joints, etc. These exercises draw the blood away from the head and breast, and so give relief in cases of headache from congestion, vertigo, etc. All three exercises may be taken two or three times a day.

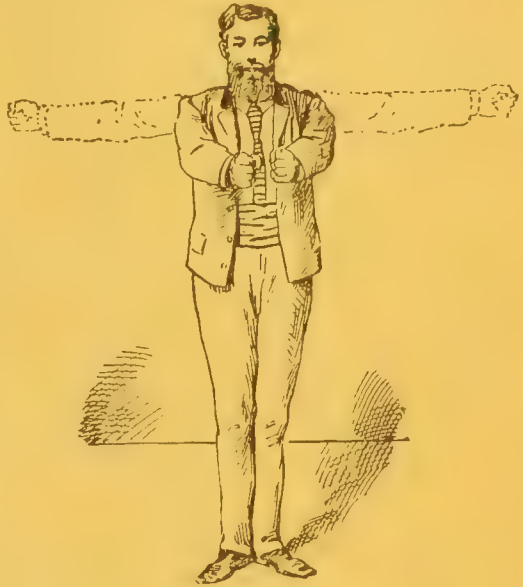


Fig. 241. Throwing the Arms together  
(5—10—15 times).



Fig. 242. Throwing the Arms apart  
(5—10—15 times).

The exercise of "rubbing the hands" (Fig. 246) serves

the same purpose. It warms the hands quickly, promotes the circulation in them, and draws the blood away from the head and breast. Moreover, it strengthens the muscles of the arms, especially the flexor muscles and the anterior muscles of the chest.

An exercise that employs most of the muscles of the abdomen and back, besides those of the arm and shoulder, increases the circulation throughout the body, gives plenty of warmth to the trunk and the arms, and is useful

in cases where there is a paralytic condition of the muscles of the arms, abdomen, and back, and of obstructions in the abdominal organs, is

the "throwing of the arms forward and backwards" (Fig. 247). Both arms, with the fists closed, are thrown vigorously forward and backwards in this exercise, whilst they are stretched out, but not strained. The body should not remain stiff during the exercise, but should give a little at the hips. When the arms are thrown forward, it should bend back a little at the hip joints, and forwards when the arms go



Fig. 243. Rolling the Arms  
(5 10- 20 times).



Fig. 244. The "8-Movement" of the Hand  
(10—15—20 times).

back. Dr. Schreber recommends this exercise, especially



Fig. 245. Bending and stretching the Fingers (5—10—15 times).

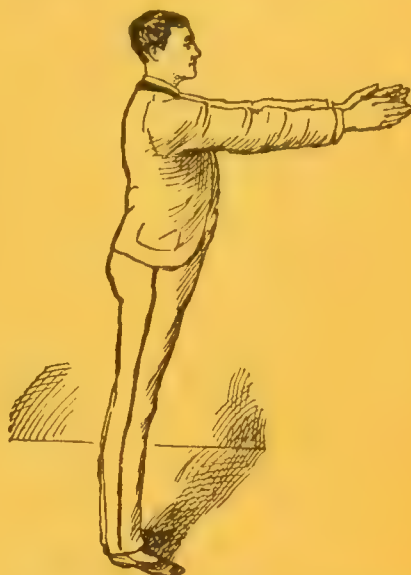


Fig. 246. Rubbing the Hands (20—30—50 times).

to those who need a tonic for bodily or mental depression,



Fig. 247. Throwing the Arms forward and backwards (10—30—50 times).

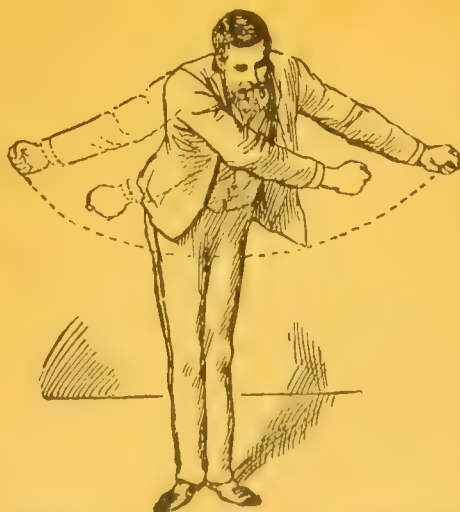


Fig. 248. Throwing the Arms sideways (15—30—50 times).





Fig. 249. The Saw Movement  
(5—10—15 times).

is flexed at the hip joint. It calls into play the muscles at the side of the abdomen as well as those of the arms.

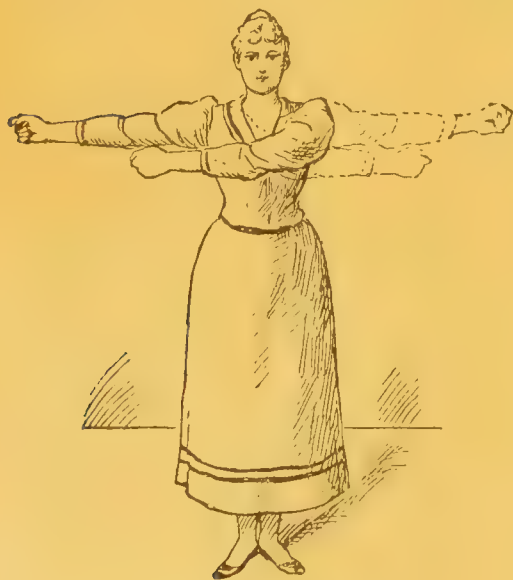


Fig. 250. The "Cutting Movement"  
(5—10—15 times).

in consequence of a change of weather or a relaxation of the abdominal nerves. He advises, in order to get more effect on the muscles of the trunk, to swing one arm forward and the other backwards simultaneously.

"Throwing the arms sideways" (Fig. 248) is an exercise which only differs from the preceding in the direction which it takes. The arms are only swung sideways in this exercise, but otherwise the movement is the same. The upper part of the body is inclined forwards a little during the exercise, and

Hence it acts as a stimulus to the liver and spleen and neighbouring organs. It is especially useful in cases where we have to cure irregularities in these organs. The muscles of the back are also strengthened by the bending forward of the body.\*

In the "sawing movement" (Fig. 249) nearly all the muscles of the arms, shoulders, and back are called into vigorous play. It is therefore very useful for winding up a series of the exercises we have described, for curing derangements of

the circulation and functions of the pectoral and abdominal

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\* Throwing the arms sideways is, at the same time, like the throwing of the arms backwards and forwards, an exercise for the muscles of the trunk.

organs, for 'assisting a preceding massage of the abdomen (see this in the Index), and for breaking up and absorbing morbid deposits into the system. It is done in the following manner: The patient, bending well forward, works one arm vigorously forward and downwards, and the other arm backwards and upwards at the same moment. In this way the two arms work precisely together.

What is called the "cutting movement" (Fig. 250) is an exercise which vigorously employs not only the muscles



Fig. 251. Bending the Body  
backwards and forwards  
(5—10—15 times).



Fig. 252. Bending the Body  
sideways  
(10—15—20 times).

of the shoulder and the lifting muscles of the arms, but also all the muscles of the trunk, legs, and feet. The arms are stretched out horizontally, keeping them stiff and tense, and are vigorously swung out to right and left. The upper part of the body must remain quite straight during the exercise. It is useful in cases of general muscular debility; also in the first stages of paralysis of the spinal cord, in which the patient notices a certain unsteadiness in his legs and feet.\*

\* The "cutting movement" is, at the same time, an exercise for the muscles of the trunk and for the lower extremities.

## Exercises for the Muscles of the Trunk.

These exercises must be taken gently and steadily. The legs must remain firm, and must be kept tense and stretched. When the trunk is, in this attitude, bent downwards as deeply as possible in front and behind, we have the exercise shown on Fig. 251, which calls into play the front straight muscles of the abdomen, and the extensor muscles of the back. Hence the exercise of "bending the body backwards and forwards" has a beneficial effect on the functions of the digestive organs, constipation, etc.



Fig. 253. Circular Movement of the Body (3—5—15 times).



Fig. 254. Turning the Body (5—10—15 times).

The exercise shown in Fig. 252 serves the same purpose, but acts more on the portal circulation, the liver, the spleen, and the neighbouring organs. The body is gently and steadily moved from one side to the other in a straight, lateral direction; this brings into play the intercostal muscles of the abdomen. It is therefore commendable in cases of irregularity in the circulation, especially of the portal system.

The "circular movement of the body" (Fig. 253) stimulates the entire digestive system, and it is therefore useful in cases of disturbance of its function, and for curing the

many complaints that result therefrom, for instance, vertigo, giddiness, &c. The body describes a wide, deep circle from right to left, without changing the front position — only turning on the hip joints — alternately with a circle from left to right. All the muscles of the abdomen and hips are employed in it. If the exercise is to act directly on the motion of the bowels, you turn only in the right to left direction, laying a certain emphasis on the latter half of the circle described with the body.

The "turning of the body" (Fig. 254) brings into play the muscles of the lower part of the back and the hips to the right and left of the body. As the trunk, standing erect, turns widely on its axis to either side, this causes a stretching of the opposite wall of the abdomen. Thus the intestines are very beneficially stimulated, and their peristaltic action is much increased.

The ("woodman's) Axe Movement" (Fig. 255) is an excellent remedy for sluggishness of the abdominal organs. It has also other valuable effects, for it calls into play the lifting muscles of the arms, the whole of the anterior and posterior muscles of the trunk, and nearly all the muscles of the legs and feet; it has also a strong reaction in the tiring of the whole body. The legs are set a little



Fig. 255. The (Woodman's) Axe Movement (5—10—15 times).

apart whilst it is being done. The outstretched arms are lifted up high, and then brought down as if you were cleaving a log of wood lying on the ground with an axe. The legs are flexed at the knee joints during the proceeding. In the course of certain diseases, this exercise can also be taken with benefit for the purpose of stimulating the nerves of the spinal cord, even when there is in question paralysis of the cord that has already made some progress. (Schreber.) People who suffer from congestion in the head or breast, and women, should not take this exercise.

The exercise of "raising up the body" (Fig. 256) serves for



making tense all the abdominal muscles, particularly those in front, and consequently for stimulating the action of the digestive organs. Hence it is useful in cases of debility or paralysis of the abdominal muscles, and sluggishness of the bowels and its results; it may also be tried for curing rupture. The exercise is best taken on a mattress lying on the ground, or a thick, folded carpet, and consists in raising the body into an upright position. The legs must remain stretched out all the time. As the beginner rarely succeeds

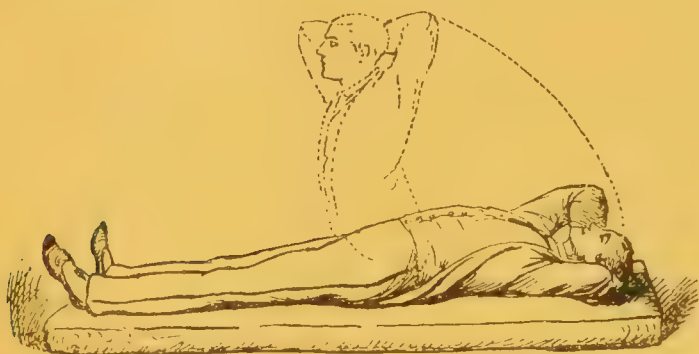


Fig. 256. Raising up the Body (3—5—10 times).

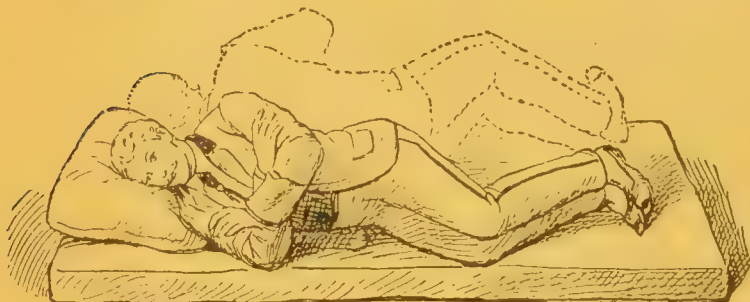


Fig. 257. Rolling on the Back (15—20—25 times).

in doing this, it is as well to have a piece of furniture to place the feet under during the exercise at first. (Lay the foot-end of the mattress in front of a chest of drawers, wardrobe, or something of that kind.) It is best to cross the hands on the breast at first; after a good deal of practice they may be placed behind the head, as is shown in Fig. 256. People with a rupture must be extremely careful in taking this exercise when it has been prescribed by a physician (naturally, they must not leave off the truss), and should prop up the upper part of the body a little in the beginning (with a few

pillows), gradually reducing their number until they lie in a completely horizontal position. Women with weak abdominal muscles should take the same precaution.

"Rolling on the back" (Fig. 257) is an exercise that is not taken with the view of a radical cure, but merely as a palliative in case of obstructions and congestion in the abdominal organs. The patient lies on his back, with a pillow under his head, on a mattress placed on the ground, or on some other soft bed, which only needs to be as long as the trunk. The arms are crossed on the chest, and the legs drawn up a little towards the body, so that the heels touch the mattress. The body is then rolled, first to one side and then to the other, so as to lie on the arm, shoulder, and hip bone at each turn.

### Exercises for the Muscles of the Legs.

"Raising the knee in front" (Fig. 258) is an important exercise for the muscles of the lower extremities. The trunk is kept as immovable as possible during the proceeding, and the knee is brought as close to the chest as possible. It serves to strengthen the lifting muscles of the legs and the deeper-lying muscles of the abdomen. As it beneficially stimulates the functions of the abdominal organs, it is useful in all diseases that depend on obstructions of the circulation in the abdomen, for instance, flatulence, constipation, hemorrhoids, delayed menstrual flow, chronic mucous discharge from the female organs, etc. — in general, in all diseases that are due to congestion in the abdominal organs. It is not to be taken when there is inflammation of the abdominal organs, tendency to hemorrhage, rupture, etc., as it always has a heating and blood-attracting effect.

An exercise that not only promotes the circulation in the abdomen, and so forms an excellent remedy for obstructions

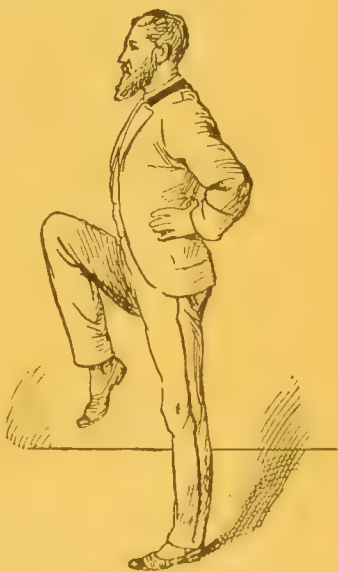


Fig. 258. Raising the Knee in front (3—5—10 times with each knee).

in it, but also attracts the blood from the head and breast, is the "bending and stretching of the knee in front and behind." (Figs. 259 and 260.)

In this exercise the leg is vigorously bent at the knee joint, and steadily raised in front, exerting all its muscles. At the finish the knee is quite straight. Then the second leg is treated. Most of the extensor and flexor muscles of the legs and feet, as well as the deeper-lying abdominal muscles, are brought into play and strengthened in this proceeding. It can also be used with profit to give freedom to the knee joint when it is stiff, but not painful.



Fig. 259. Stretching and Bending the Knee in front  
(3—5—10 times with each leg).

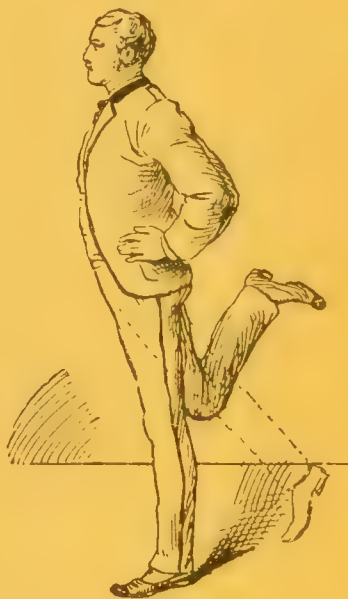


Fig. 260. Stretching and Bending the Knee behind  
(5—10 times with each leg).

To bend and stretch the knee behind, the leg is first stretched backwards as far as possible, then the knee is bent and stretched again. It is best to repeat the exercise the number of times prescribed in succession, and not to change from one leg to the other. It brings into play the extensor and flexor muscles of the legs and feet, and those of the lower part of the back.

"Raising the leg sideways" (Fig. 261) is an exercise that is useful for giving freedom to what is called the ball and socket joint, in cases of muscular paralysis in the neighbourhood of this joint (the hip joint), obstruction of

the portal circulation, congestion of the liver and spleen, etc. It exercises the side muscles of the loins and the abdominal muscles. The exercise itself is taken by raising the outstretched leg to the right and left without exerting any force. A certain emphasis is laid on the beginning of the raising movement. After a time you change to the other leg. Women must not attempt this exercise.

In the "rotating movement of the legs" (Fig. 262) we have an exercise which resembles the preceding in its effect, only it acts more gently. The leg is fully stretched



Fig 261. Raising the Leg sideways (3—5—10 times with each leg).



Fig. 262. Rotating Movement of the Leg (3—5 times with each leg).

out, and is made to describe as wide a circle as possible from the front to the back, and then round again to the starting point; then it is the turn of the other leg.

The trunk must be kept as erect as possible during the exercise. As the lifting muscles of the leg, and the muscles of the lower part of the trunk are employed in it, especially the muscles of the lower part of the back, this exercise, together with the preceding, is useful for curing the diseases we mentioned in connection with the former.

In order to bring into play the rotating and stretching (extensor) muscles of the leg, it is rolled vigorously outwards, stretching it out freely and raising the points of the feet. "Rolling the leg" (Fig. 263) is done the prescribed



number of times in succession, with one and the same leg, not changing to the other leg after each turn.

"Drawing the legs together" (Fig. 264) is an excellent exercise for strengthening the muscles of the calf and the inner part of the thigh. The legs are moderately spread out, and the toes pointed sharply outwards. Then the legs are drawn together, the knees remaining stiff, slipping along the ground with short jerks of each leg, until the heels



Fig. 263. Rolling the Leg  
(10—15—20 times with  
each leg).



Fig. 264. Drawing the Legs  
together  
(3—5 times).

touch. This exercise has also a valuable after-effect — it attracts the blood from the head and breast.

The blood is also drawn away from the head and breast by means of the "trotting movement" (Fig. 265), but its chief effect is on the abdomen, the organs of which are beneficially stimulated by it. It regulates the abdominal circulation, and restores repressed hemorrhoids and menstrual discharges in women. It also has a soothing influence, inducing sleep, and cures chronic cold feet. In this exercise you only tread on the points of the feet, and remain "trotting" on one spot, keeping the upper part of the body erect and the knee and ankle joints flexed.

In order to give freedom to all the joints of the legs and feet, to exert and to strengthen the calves and the toes, and to bring the blood down "below" from up "above," it

is well to try the exercise of "bending down on both feet" (Fig. 266). You raise yourself on the points of your feet, with the heels close together, let yourself down as low as possible, keeping the body perfectly erect, and then raise yourself in the same way. Care must be taken that the heels remain close together.

If you want to cause strong contraction of the lifting muscles of the legs, that lie deep in the abdominal cavity, and thus exert a powerful action on the lowest parts of the intestines — in order, for instance, to cure obstinate



Fig. 265. The Trotting Movement (50—100—200 times on one spot).



Fig. 266. Bending Down on both Feet (10—15—20 times).

constipation — you will do well to use the exercise of "stepping over the stick." (Fig. 267.)

You take any convenient stick in the finger tips of the two hands, so that there is about the breadth of the body between the two. Then, bending forward a little, you try to step over the stick with first one and then the other leg, without letting it drop, or losing the vertical position of the lower part of the leg. When both legs have crossed the stick, they are brought back again in the same way. This exercise needs a little practice. Some can manage it easily after a few attempts; others never succeed in doing it. To find a substitute for the latter people, let me introduce

them to the exercise of "stretching and bending the foot" (Fig. 268), which is easily done, and is very useful for giving greater freedom to the ankle, the sole, and the toes, and also very quickly cures cold feet. Besides, it brings into play all the muscles of the thigh, calf, and foot. To accomplish the exercise, the leg is stretched straight from



Fig. 267. Stepping over the Stick (3—5—8 times with each leg backwards and forward).

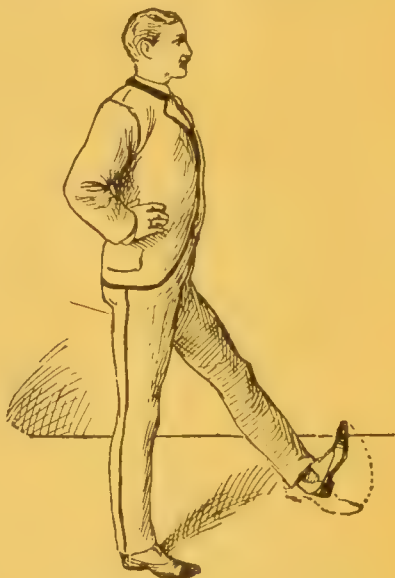


Fig. 268. Stretching and Bending the Foot (10—15—30 times).

the knee, held free in front (as shown in Fig. 268); the point of the foot is then moved vigorously up and down. The movement comes from the ankle. With it may be combined a stretching and bending of the toes, which requires a different kind of shoe from the modern, narrow, pointed, senseless structure.

### 3. Important General Observations on the Simple Active Exercises.

With regard to the physiological effect of methodical bodily exercise, I must first refer the reader to pp. 683, 713. As to the indication how often each exercise is to be repeated — in case a select series of exercises are taken in succession every day — we have given instructions, by means of two or three numerals at the foot of each illustration. The first indicates the number of repetitions in

the beginning, the second after two or three weeks', and the third after six or eight weeks' practice in active gymnastics.

Naturally the figures must not be taken as a hard and fast rule, but the number of repetitions must depend always on the constitution, age, sex, and severity and form of the disease.

Whether you should then take the series of exercises selected more than once a day depends on circumstances, for which it is impossible to give directions. It also depends very much on the individual constitution. In general, however, it is not advisable to go through them more than once a day, so as to have the body strengthened by a night's rest for the next cycle of exercises.

The best time for taking them is half-an-hour or an hour before one of the three meals. The stomach should contain as little as possible during the proceeding. The bladder should also be evacuated beforehand, and finally the intestines.

Before every exercise tight-fitting garments must be removed. It is best to carry out the exercise in one's shirt-sleeves, take off the vest, remove the collar, and put on a pair of light gloves, so as to feel like — a man!

If the breathing and the action of the heart are unusually accelerated by the exercises, you must wait until they moderate a little before going on with the next. The rests, voluntary or involuntary, should be used for breathing exercise, for steady, deep, and vigorous inspiration and expiration, planting the arms lightly on the hips, or throwing them to the back.

In cases of a tendency to congestion, or to hemorrhage of the internal vital organs, chronic inflammation, rupture, etc., the exercises must be taken with extreme caution and careful attention to individual circumstances, and it is best to consult a physician first. People with rupture, especially young people, in whom rupture, if not of long-standing, is often cured by gymnastic exercises, should, as I said above, not lay aside their truss during the exercises; they should attach great importance to the possession of a close and well-fitting truss.

Lighter ailments that do not confine one to bed need not interrupt the daily exercises, but women should omit them entirely during the monthly period. There are certain modified exercises that may be taken at this time, but they are subject to expert advice in each individual case.



It is extremely important that the exercises be conducted steadily and smoothly, but energetically. Do not act on the principle of "If you do not come to-day you can come to-morrow." You do not need to bend like a nineteenth-century "scorcher" in doing the exercises, but, at the same time, you need not be too formly erect. Choose the golden middle path! Let each exercise be vigorous, clean, and smooth. You will need a certain amount of practice, but you soon obtain it if you like your work. Those who are prevented from doing one or other exercise by bodily disability must be content with what they can do. A sensible arrangement of the exercises makes the gymnastic treatment practicable and beneficial to everybody, the boy and the old man, the delicate and frail, as well as the strong and comparatively healthy.

A feeling of fatigue should be experienced after every exercise. This should entirely disappear in the interval of rest after the exercises. If you feel pains in the muscles, you have been too long at them. The number of exercises should be reduced next time. After a few repetitions of the reduced number of exercises, they may be gradually increased, until you can do twice or thrice as much without injury. Do not run away with the wrong idea that you cannot carry out or endure the exercises. When one or other exercise is not immediately successful, do not give it up, but repeat it confidently, if there is no organic defect or weakness of the vital force to prevent it. "*Gutta cavat lapidem, non vi, sed sæpe cadendo*" — "Water hollows out the stone, not by force but by continual dripping." If a gymnastic treatment is conducted intelligently, and in the right place, success is certain, though perhaps slow. Go to work gradually, therefore; find out by self-observation the measure of your strength; be prudent, and avoid excess. A judicious proportion between exercise and rest, exertion and fatigue, is a fundamental condition of the welfare of our physiological machinery.

We need to say again, that the exercises must be taken in good, fresh air — in a room with the window open, or in well-ventilated halls, but, best of all, in the open air.

I now give, in the following Chapter, various groups of exercises, which are arranged to meet different diseases. But I must once more observe, that these directions must not be taken as hard and fast rules, the individual circumstances must always be taken into account most carefully.

#### 4. Directions for various Forms of Disease.

1. Course of exercises for the comparatively healthy; for those who have some lighter chronic malady, which is partly due to lack of exercise; for the anæmic; those with nervous or muscular debility, the corpulent, dyspeptic, etc.:

Thrusting the arms forward (Fig. 234).

Thrusting the arms upwards (Fig. 233).

Thrusting the arms outwards (Fig. 237).

Circular movement of the arms (Fig. 239).

Raising the leg sideways (Fig. 261). (Not for women).

Drawing the legs together (Fig. 264).

Circular movement of the body (Fig. 253).

Throwing the arms backwards and forwards (Fig. 247).

Bending down (Fig. 266).

Rubbing the hands (Fig. 246).

Raising the knee in front (Fig. 258).

Stretching and bending the foot (Fig. 268).

Sawing movement (Fig. 249).

Raising up the body (Fig. 256).

Trotting movement (Fig. 265).

Cutting movement (Fig. 250).

2. Course of exercises for the purpose of securing a normal build of the body for children of either sex, from five to six years old:

Turning the head to the right and left (Fig. 224).

Circular movement of the head to the right and left (Fig. 225).

Thrusting the arms upwards (Fig. 233).

Thrusting the arms forwards (Fig. 234).

Thrusting the arms downwards (Fig. 235).

Thrusting the arms backwards (Fig. 236).

Thrusting the arms outwards (Fig. 237).

Rotating movement of the legs (Fig. 262).

Circular movement of the arms (Fig. 239).

Raising the arms sideways (Fig. 240).

Throwing the arms together (Fig. 241).

Throwing the arms apart (Fig. 242).

Bending the elbows (Fig. 231).

Stretching the arms backwards and downwards (Fig. 232).

Raising the leg sideways (Fig. 261). (Not for girls).

Drawing the legs together (Fig. 264).

Rolling the legs (Fig. 263).

Bending the body backwards and forwards (Fig. 251).

Turning the body (Fig. 254).

Bending the body sideways (Fig. 252).

Rolling the arms (Fig. 243).

8-movement of the hand (Fig. 244).

Bending and stretching the fingers (Fig. 245).

Raising the knee in front (Fig. 258). (Not for girls).

Stretching and bending the knee in front (Fig. 259).

Stretching and bending the knee behind (Fig. 260).

Bending down (Fig. 266).

Walking with the stick (Fig. 230).

### 3. Course of exercises for drawing the blood from the head and breast:

Rolling the leg (Fig. 263).

Raising the leg sideways (Fig. 261). (Not for women).

Rotating movement of the leg (Fig. 262).

Rubbing the hands (Fig. 246).

Rolling the arms (Fig. 243).

8-movement of the hands (Fig. 244).

Stretching and bending the knee in front (Fig. 259).

Stretching and bending the knee behind (Fig. 260).

Trotting movement (Fig. 265).

Bending down (Fig. 266).

### 4. Course of exercises for curing sluggishness of the abdominal functions, especially chronic gastric catarrh, habitual constipation, &c., and all diseases that are due to defective digestion, such as hypochondria, hysteria, hemorrhoids, chronically cold feet and hands, etc.:

Throwing the arms backwards and forwards (Fig. 247).

Circular movement with a stick (Fig. 229).

Bending the body backwards and forwards (Fig. 251).

Turning the body (Fig. 254).

Bending the body sideways (Fig. 252).

Raising the knee in front (Fig. 258).

Circular movement of the body (Fig. 253).

Stretching and bending the knee in front (Fig. 259).

Raising the body (Fig. 256).

Raising the leg sideways (Fig. 261). (Not for women).

Throwing the arms out sideways (Fig. 248).

Woodman's or axe movement (Fig. 255). (Not for women).

Stepping over the stick (Fig. 267).

Sawing movement (Fig. 249).

Trotting movement (Fig. 265).

5. Course of exercises for promoting scanty or deferred monthly discharge in women:

Thrusting the arms downwards (Fig. 235).

Trotting movement (Fig. 265).

Throwing the arms backwards and forwards (Fig. 247).

Raising the knee in front (Fig. 258).

Cutting movement (Fig. 250).

Sawing movement (Fig. 249).

Rotating movement of the leg (Fig. 262).

6. Course of exercises for curing frequent pollution, and sexual nervous debility (neurasthenia), etc.:

Thrusting the arms upwards (Fig. 233).

Thrusting the arms forward (Fig. 234).

Thrusting the arms outwards (Fig. 237),

Circular movement of the arms (Fig. 239).

Raising the arms sideways (Fig. 240).

Sawing movement (Fig. 249).

Woodman's axe movement (Fig. 255).

Bending the elbows (Fig. 231).

Throwing the arms together (Fig. 241).

Throwing the arms apart (Fig. 242).

Rubbing the hands (Fig. 246).

Cutting movement (Fig. 250).

Bending down (Fig. 266).

7. Course of exercises for tentative treatment of rupture (hernia) in young people:\*

Raising the body (Fig. 256).

Thrusting the arms backwards (Fig. 236).

Cutting movement (Fig. 250).

Bending the body backwards and forwards (Fig. 251).

Turning the body (Fig. 254).

Throwing the arms backwards and forwards (Fig. 247).

8. Course of exercises for improving respiration, curing all kinds of chest diseases, expanding the chest, curing chronic catarrh and asthma, strengthening the organs of speech, the voice, etc.:\*\*

\* "A rupture that cannot be completely brought back must not be treated in this way. The exercises should be done evenly (on both sides), even when the patient has only rupture of one side . . . They should be continued for six to eight months. After three months they may be taken — in an increased proportion — twice a day . . . The treatment is not suitable for femoral hernia." (Schreiber.)

\*\* Stutterers, and people who have to speak much, preachers, actors, teachers, singers, etc., will find these exercises useful.



Thrusting the arms upwards (Fig. 233).  
Thrusting the arms outwards (Fig. 237).  
Bending the elbows (Fig. 231).  
Stretching the arms down behind (Fig. 232).  
Raising the shoulders (Fig. 226).  
Circular movement of the arms (Fig. 239).  
Bending the body sideways (Fig. 252).  
Raising the arms sideways (Fig. 240).  
Circular movement of the body (Fig. 253).  
Circular movement with the stick (Fig. 229).  
Walking with the stick (Fig. 230).

9. Course of exercises for curing paralysis of the muscles of the arm in the early stages:

Bending the elbows (Fig. 231).  
Stretching the arms down behind (Fig. 232).  
Thrusting the arms upwards (Fig. 233).  
Thrusting the arms forwards (Fig. 234).  
Thrusting the arms downwards (Fig. 235).  
Thrusting the arms backwards (Fig. 236).  
Thrusting the arms outwards (Fig. 237).  
Rubbing the hands (Fig. 246).  
Raising the shoulders (Fig. 226).  
Circular movement of the arms (Fig. 239).  
Rolling the arms (Fig. 243).  
8-movement of the hand (Fig. 244).  
Raising the arm sideways (Fig. 240).  
Bending and stretching the fingers (Fig. 245).

10. Course of exercises for curing paralysis of the muscles of the legs in the early stages:

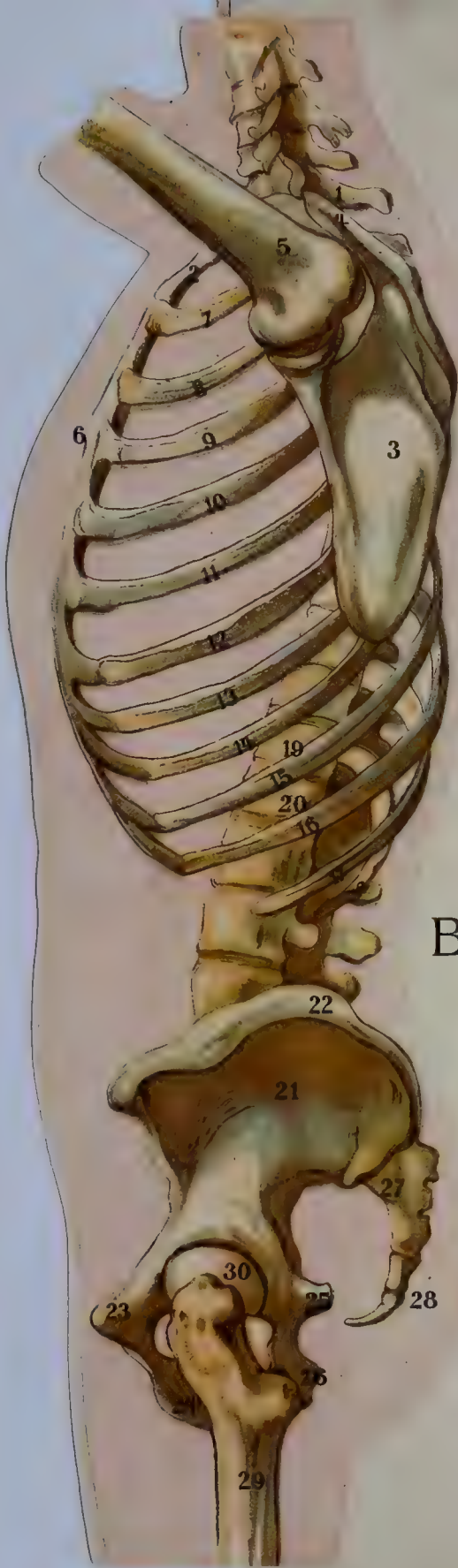
Raising the leg sideways (Fig. 261). (Not for women).  
Rotating movement of the leg (Fig. 262).  
Stretching and bending the knee in front (Fig. 259).  
Stretching and bending the knee behind (Fig. 260).  
Drawing the legs together (Fig. 264).  
Stretching and bending the foot (Fig. 268).  
Cutting movement (Fig. 250).  
Raising the body (Fig. 256).  
Bending down (Fig. 266).  
Trotting movement (Fig. 265).  
Rolling the leg (Fig. 263).



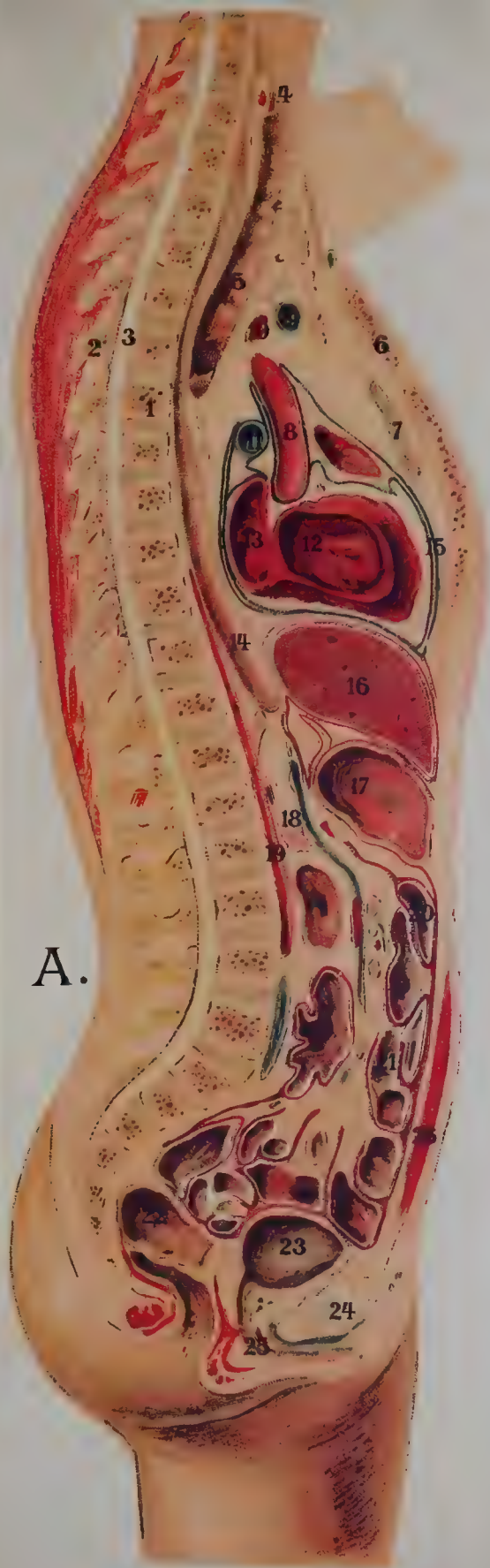


Anatomical Plates  
of the Male Body

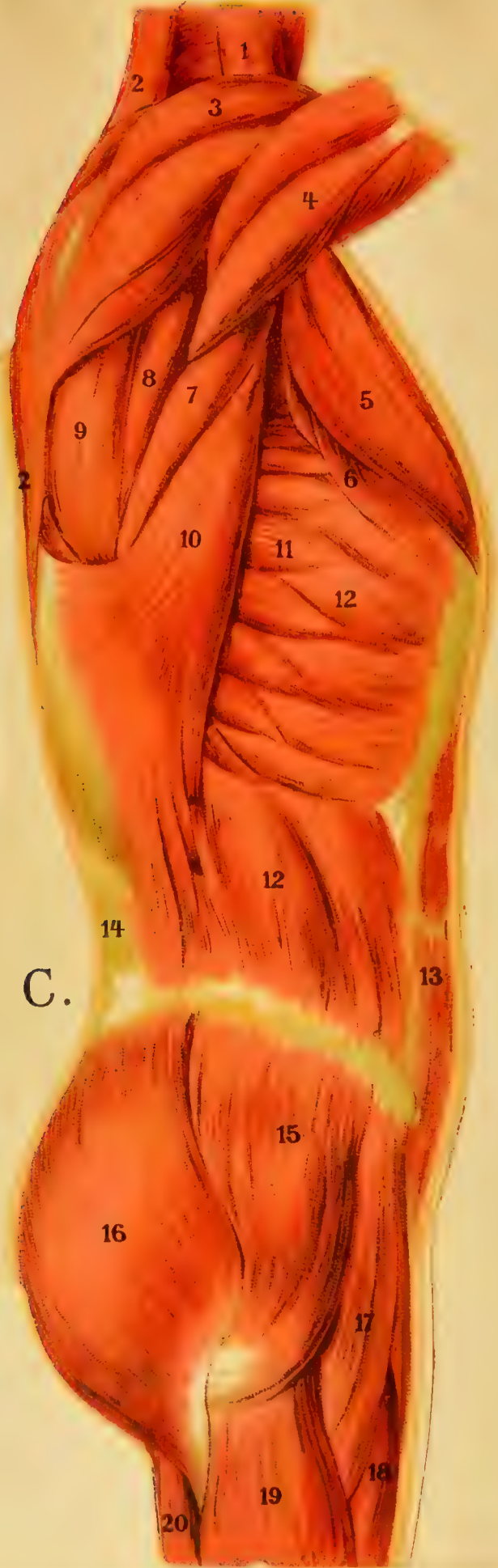




B.



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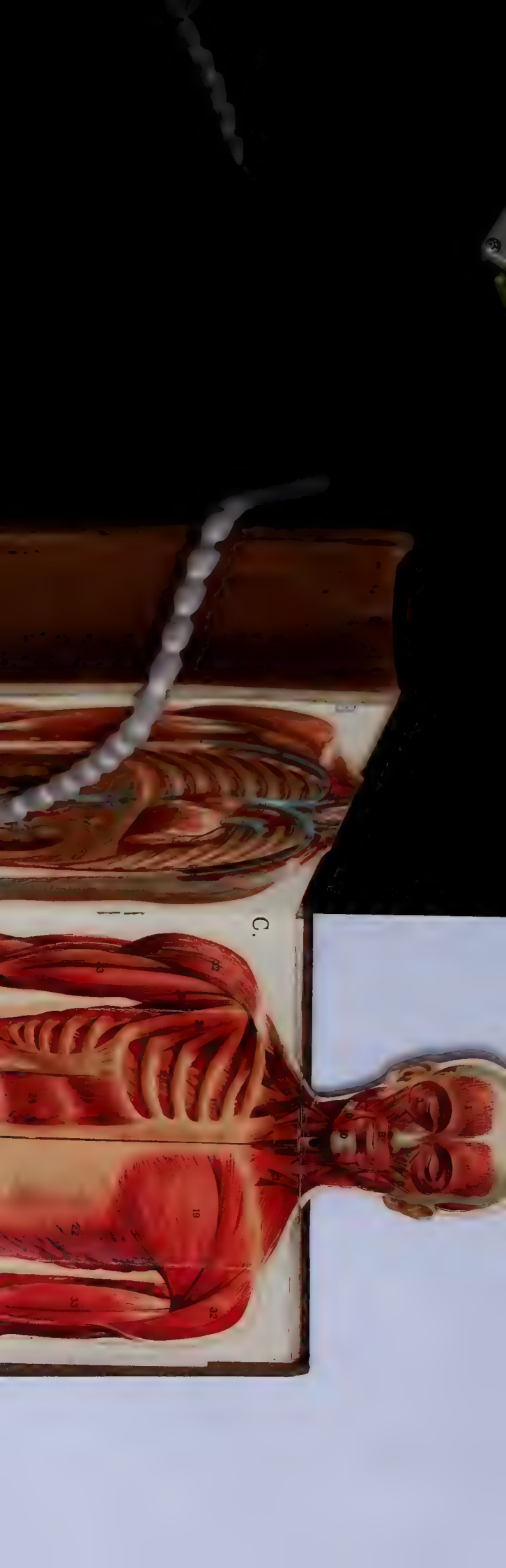






B.





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B.

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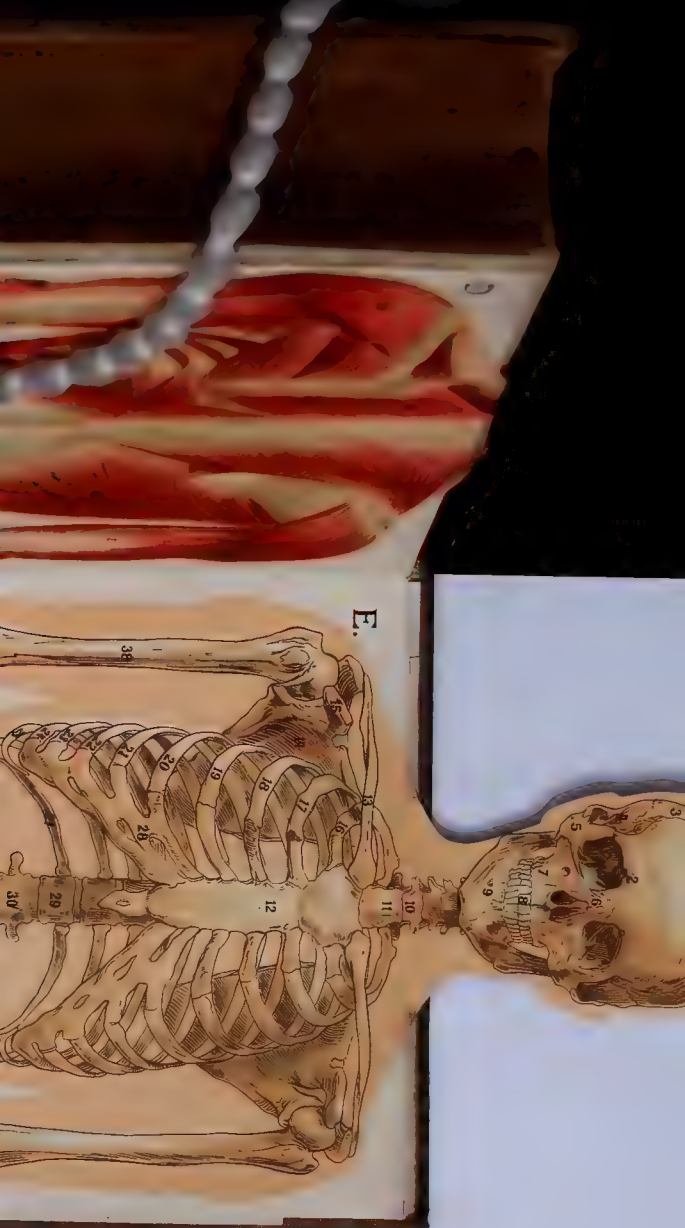
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F.

